



# Radio Communications in Class D Airspace

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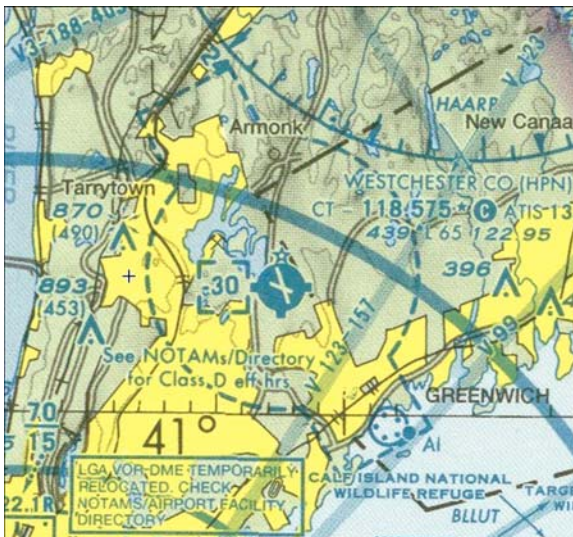
Class D airspace is one of the most common parts of the airspace system that requires specific radio communications. Although you can operate there without a radio with the prior consent of the tower controller, the general rule is that two-way communications must be established prior to operation in a Class D environment. This is required knowledge for UAS operators.

Talking to a controller is not enough to “establish” communications – *the controller must say your callsign* (AIM 3-2-5.b3). This is a requirement that is frequently misunderstood. It is important to understand this especially when you wish to enter a Class Delta airspace.

Because Class D airspace does not generally have a dedicated approach controller, the ATC facility that oversees the volume of air is the airport control tower. Pilots communicate with tower controllers and ground controllers, depending on their current location.

## Class D Airports

Class D airspaces are generally shaped like cylinders and surround airports with operating control towers. There are exceptions to the cylindrical airspace shape (see the depiction of Westchester Co. Airport below). Because pilots may not fly into Class D airspace without first establishing communications, it is imperative that they know the precise shape and boundaries of the airspace. Airports and their surrounding airspace are only classified as Delta when the control tower is operational. If the tower closes at night, the airspace reverts to either Class E or Class G.



Class D towers are primarily manned by a tower controller and a ground controller. Sometimes, this may be the same person doing double-duty. Vehicles on the ground in the “movement areas” must talk to the ground controller. Typically, this is the situation during taxiing. Prior to reaching the departure runway’s hold-short line, pilots should contact the tower controller. He or she is the person responsible for controlling airplanes in flight (and during the ground roll portions of takeoffs and landings).

So, we can simplify by saying that pilots communicate with the ground controller prior to and during taxi operations, and they communicate with the tower controller while

taking off and landing, and while in flight. With this in mind, let’s examine the main situations where specific communications are required:

- (1) At a Class D airport, on the ground prior to taxi and during the taxi operation
- (2) At a Class D airport, immediately prior to takeoff and through the departure
- (3) Inbound to a Class D airport
- (4) Transitioning through Class D airspace

## Outbound Taxi

Class Delta airport surface areas are separated into “movement” and “non-movement” areas. The ground controller authorizes and monitors vehicle operations (even cars and trucks) in movement areas. Although not a “clearance” by strict definition, permission (i.e. a clearance) to taxi must be received by the pilot prior to entering a movement area.

Non-movement areas include ramps and parking areas outside of the ground controller’s normal authority zones. A pilot may taxi in a non-movement area without receiving ground controller permission.

Movement areas include taxiways and portions of ramp areas where the ground controller authorizes vehicular movement. A pilot must receive permission from the ground controller to operate in any movement area.

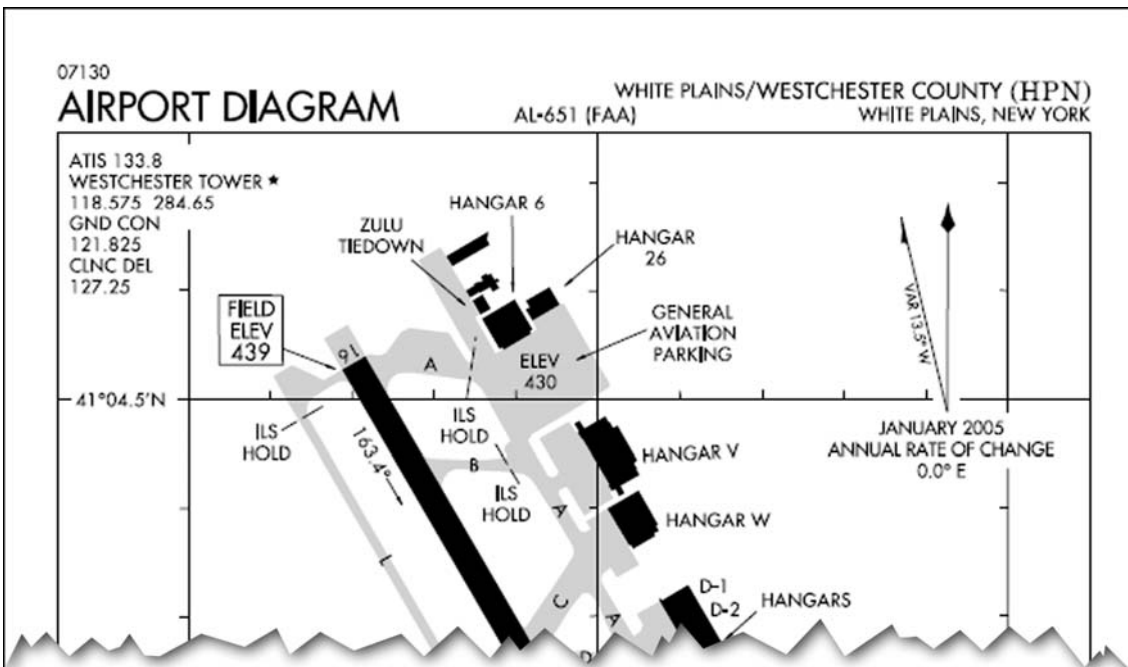
Prior to calling the ground controller for a taxi clearance, the pilot should listen to the automated weather broadcast (e.g. ATIS, AWOS, etc.). On the pilot’s call to ground, he should volunteer that he has obtained the current weather information.

Here is a simple call. The pilot’s taxi path to the takeoff runway is straightforward. There are no intervening taxiways to navigate and no runways to cross on the way.

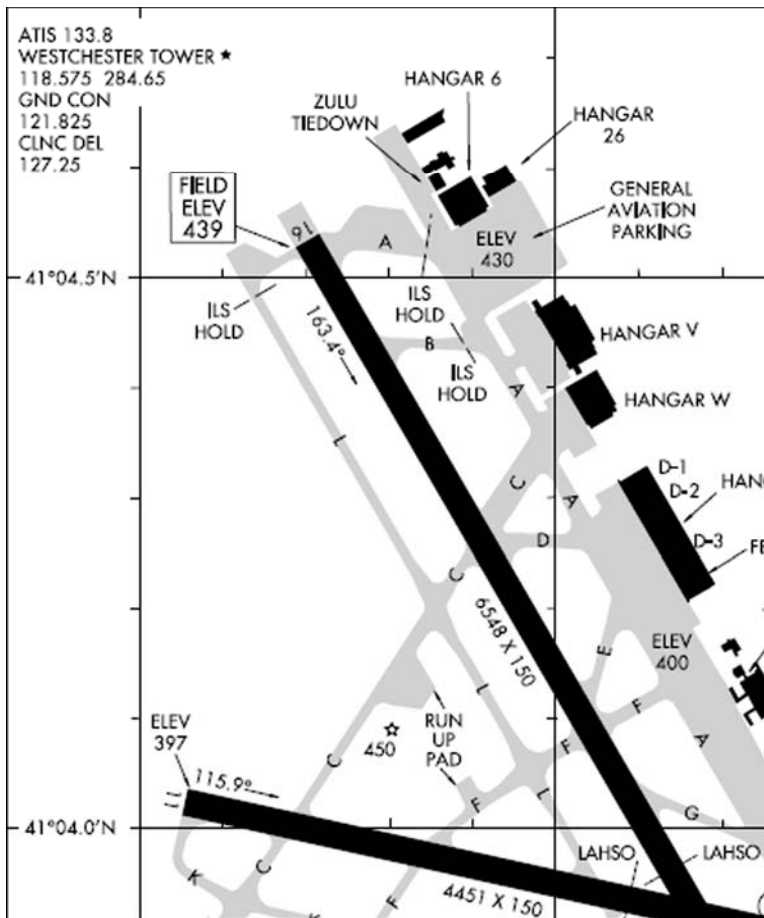
**Pilot:** “Westchester ground, Skylane 42742 at the general aviation ramp with information Tango. Ready to taxi for a southbound departure.”

**Ground:** “Skylane 42742, Westchester ground. Taxi to Runway 16 via Alpha.”

**Pilot:** “Taxi to 16 via Alpha. Skylane 42742.”



In a more complex situation, imagine that the departure runway is Runway 11. The pilot would need to taxi on Alpha to Charley, then across Runway 16 to get to Runway 11.



When the pilot calls for his taxi clearance, he can expect a more complicated set of instructions. He will be given multiple taxiways to follow, he may be asked to “give way” to other traffic, and he will likely be told to “hold short” of Runway 16 during his trip.

It is very important that pilots have taxiway diagrams like the one shown here when they are operating at unfamiliar airports. This makes it easier for the pilot to find his way and to follow his taxi instructions.

Airport diagrams are updated every 56 days.

**Pilot:** “Westchester ground, Skylane 42742 at the general aviation ramp with information Tango. Ready to taxi for a southbound departure.”

**Ground:** “Skylane 42742, Westchester ground. Taxi to runway 11 via taxiways Alpha and Charley. Hold short of Runway 16 on Charley.”

**Pilot:** “Taxi to 11 via Alpha and Charley. Hold short of 16 on Charley. Skylane 42742.”

If the pilot had responded simply, “Taxi to 11. Hold short of 16 on Charley. 42742,” the controller would have probably been satisfied. But if the pilot had only said “Taxi to 11, 42742,” the controller would have immediately replied with a terse “42742, read back hold short instructions.” Hold short instructions are required read backs.

Once the pilot has taxied from the General Aviation parking ramp onto Taxiway Charley, he stops at the hold short line for Runway 16. The ground controller visually sees the pilot holding short and the following exchange occurs.

**Ground:** "Skylane 42742, taxi across Runway 16."

**Pilot:** "Crossing Runway 16. 42742."

After crossing Runway 16, the pilot's next stop will probably be the runup pad on his left on Taxiway Charley. When he leaves the taxiway and turns into the runup area, the pilot has left the "movement area". He will need another taxi clearance when he is ready to proceed to the hold short position for Runway 11.

**Pilot:** "Westchester ground. 42742 at the Charley runup pad, runup complete."

**Ground:** "Skylane 42742. Taxi to 11 and hold short. Contact Tower when ready."

**Pilot:** "Taxi to 11 on Alpha and hold short. Skylane 42742."

At the Runway 11 hold short line, the pilot changes to the tower frequency and calls.

**Pilot:** "Westchester tower, Skylane 42742, ready for departure."

## Takeoff and Departure

Whether the trip was straightforward or convoluted, the pilot will eventually reach the final hold short line at the departure end of his assigned runway. When he calls the tower controller indicating that he is ready for takeoff, the controller will either clear him for takeoff or may tell him to “hold short” (if other traffic is a factor). In either case, the instruction must be read back.

Frequently, the tower controller may append other information to the takeoff clearance. He might say “right turnout approved” or perhaps give a reading of the winds. These are informational and are not required readbacks from the pilot.

**Pilot:** “Westchester tower, 42742, ready for departure.”

**Tower:** “42742, cleared for takeoff. Turn to the south approved.”

**Pilot:** “Cleared for takeoff. 42742.”

When departing a Class Delta airport, it is mandatory that the pilot remain in radio contact with the tower until one of two things happens:

- (1) The aircraft departs the confines of the Class D airspace, or
- (2) The tower controller tells the pilot “Frequency change approved.”

At some airports and in some high traffic situations, the tower may ask the pilot to report leaving the Class Delta airspace. This is not, however, the norm. Once you have exited the Class D, you are no longer required to communicate with the tower.

## Inbound to Class D

As we've seen, Class Delta airspace is outlined on sectional charts by a dashed blue line. Generally it inscribes a cylinder with a radius of approximately four nautical miles and has a top at approximately 2,500 feet AGL (above ground level). But the final authority on the coverage of a Class D is that dashed blue outline on the chart.

You are not authorized to enter Class D airspace until you have established radio contact with the tower controller. And communications are not considered to be "established" until the controller has said your callsign.

You should generally plan on making your initial call to the Class D tower when you are roughly ten miles out. Check the ATIS or AWOS first and let the controller know that you have listened to the current weather broadcast. Your initial call should follow this mnemonic: DDAA.

**DDAA** – Distance, direction, Altitude, ATIS, and your intentions (i.e. landing, touch and goes, etc.)

**Pilot:** "Westchester tower, Skylane 42742, ten miles east at 2,800 with Yankee, full stop."

At this point the tower can give you a variety of replies. Here are some examples:

**Tower:** "Skylane 42742, report the left downwind for Runway 16"

*Explanation: Continue toward the airport and maneuver for the left downwind. Report to the tower when you enter the downwind leg.*

**Tower:** "42742, continue. I'll call you back with your sequence."

*Explanation: The controller is busy juggling a lot of aircraft. He wants you to continue inbound but plans on telling you how he wants you to enter the pattern soon. If you find yourself getting too close in without further instructions, call him and ask.*

**Tower:** "42742, maneuver for the straight-in for Runway 29. Report five miles."

*Explanation: You are instructed to maneuver into position for a long straight-in final for Runway 29. The tower wants you to call in and report your position when you are five miles from the runway threshold.*

**Tower:** "Aircraft calling in ten miles east, continue."

*Explanation: This is a tricky one. Unusual, but not unheard of. The controller did not say your callsign so communications have not been legally established. Even though he told you to continue, you may not cross the Class Delta boundary until the controller has referenced you by your callsign. Continue toward the airport, but don't cross that dashed blue line.*

**Tower:** "Skylane 42742, standby."

*Explanation: Another tricky one. This time the controller did say your callsign. Communications have thus been established and you may legally enter the Class D airspace. However, you better make sure that you get further instructions from him before getting too close. You may find that he has forgotten about you and you're in the middle of a metallic swarm.*

One of the last instructions you will get when inbound is your landing clearance. Specifically, you may be cleared for one of the following:

1. Cleared to land
2. Cleared for touch and go
3. Cleared for the option
4. Cleared for low approach

These are all different clearances and pilots must be careful not to confuse them. If you were inbound to an airport and had reported that you wanted to do touch and goes, that's probably what you will be expecting. But if the tower controller forgets your original request and instead clears you to land, you have only two options. Land and taxi off the runway, or ask him for a touch and go instead. Do not execute a procedure or maneuver unless the tower controller has cleared you to do so.

If a full stop landing is what you are cleared for, exit the runway on any taxiway unless you are instructed to use a specific taxiway. Once you have completely crossed the hold short line on the taxiway, you may call the ground controller to request your taxi instructions to the parking area.

## Transitioning

In pilot-speak, to transition means to move through an area. This may well be a misuse of the more appropriate word, transit. But "transition" is the term that has taken root and the term we shall use.

As we have seen, pilots may not enter Class Delta airspace without the permission of the tower. Since Class D volumes are generally low-level affairs, it is a simple procedure to fly over them when we travel from one area to the next. Pilots may, however, request permission to fly through a Class D airspace by using that term we just discussed.

**Pilot:** "Westchester tower, Skylane 42742 is seven miles northwest at 2,800. Request transition overhead to the southwest."

**Tower:** "42742, Westchester tower. Transition approved as requested. Report leaving the Class Delta."

**Pilot:** "We'll report leaving the Class Delta. 42742."

When asking for a transition, be aware of the traffic flow that the tower controller is working with. You are more likely to get approval for your transition if you fly above traffic pattern altitude and perpendicular to the approach and departure legs.