

Controlled Airspace Usage

Overview

This guide will describe the different classes of airspace and provide guidance on ATC and Pilot usage.

Controlled Airspace Classes

- Class A – Extending from FL180 up to and including FL600, this airspace is controlled by an ARTCC and used for IFR flight only. Aircraft are required to poses and IFR flight plan, two-way radio communications, and an operating Mode C transponder.
- Class B – Generally extending from the surface to 10,000 ft MSL surrounding busy airports with several layers. VFR aircraft require a clearance to operate within the Class B boundaries from the appropriate TRACON. All aircraft require two-way radio communications and an operating Mode C transponder.
- Class C – Generally extending from the surface to 4,000 ft AGL surrounding airports that are not busy enough to qualify for Class B airspace. All aircraft require two-way radio communications and an operating Mode C transponder.
- Class D – Generally extending from the surface to 2,500 ft AGL surrounding airports with an operating control tower. All aircraft require two-way radio communications.
- Class E – Generally surrounding Class B, C, and D airspaces. This airspace is considered as controlled airspace and is usually used to extend controlled airspace for instrument approaches. This airspace also extends from 14,500 ft MSL up to but not including FL180.

Class B Usage

- All VFR aircraft are required to contact the appropriate TRACON for clearance to enter into the Class B airspace.
- VFR aircraft underneath the surface area ceiling are not required to receive clearance unless they intend to penetrate the airspace.
- See Figure 1.1 Below

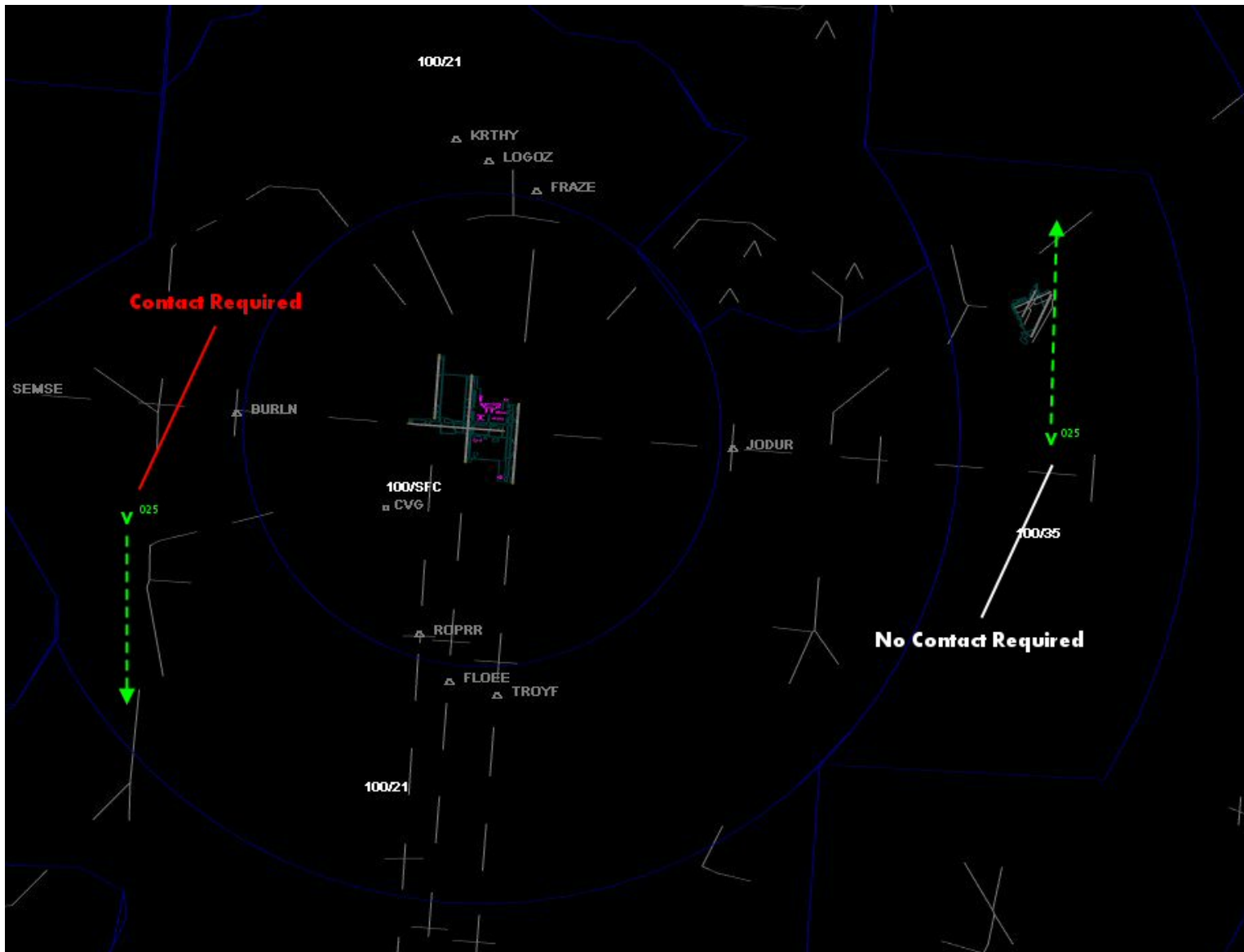


Fig 1.1

- As you can see in the above figure, the aircraft on the left is within the Class B airspace and the aircraft on the right is below.
- When a VFR aircraft calls up for clearance through the Class B airspace, issue a squawk and ident:

Cincinnati Approach, November 5-5-2 Sierra Delta 10 miles south of Cincinnati at 2,500 request clearance to transition the class bravo to the north.

November 5-5-2 Sierra Delta, Cincinnati Approach, squawk 2252 and ident.

- Once you observe the code change and the ident, radar identify the aircraft and issue the clearance.

November 5-5-2 Sierra Delta, radar contact, 9 miles south of the Cincinnati airport at 2,500, cleared through the bravo airspace.

- Additionally, you can assign an altitude and/or vectors if necessary to separate the aircraft from others.

November 5-5-2 Sierra Delta, radar contact, 9 miles south of the Cincinnati airport at 2,500, cleared through the bravo airspace, maintain 2,500 while in the bravo airspace.

November 5-5-2 Sierra Delta, radar contact, 9 miles south of the Cincinnati airport at 2,500, cleared through the bravo airspace, fly heading 350.

- Once the aircraft leaves the Class B airspace, terminate radar services.

November 5-5-2 Sierra Delta, leaving Cincinnati bravo airspace, resume own navigation, radar services terminated, squawk 1-2-0-0, frequency change approved

- VFR aircraft entering the Class B airspace are treated similar to IFR aircraft. The approach controller will vector the aircraft through the airspace for a visual approach generally placing the aircraft on a downwind or base leg.
- See Figure 1.2 below.

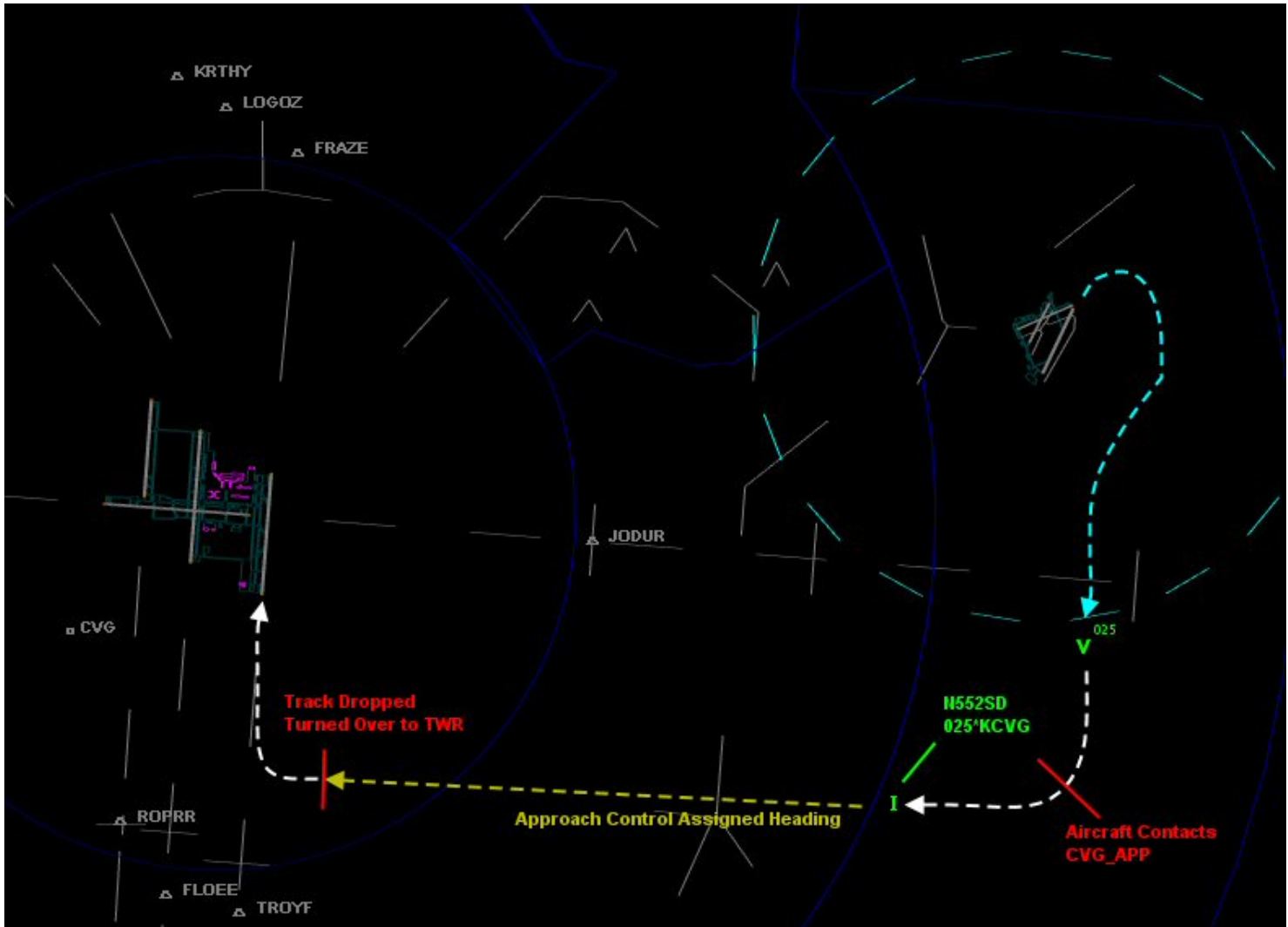


Fig 1.2

- In the figure above, the sky blue arrow represents the aircraft's flight path within Lunken Tower's airspace. The white arrows represent the aircraft's flight path under his own navigation. The gold arrow represents the aircraft's flight path after being issued a vector by Cincinnati Approach.
- Once the aircraft leaves Lunken's airspace, he will turn to enter the Bravo airspace. The aircraft will then contact Cincinnati Approach for a clearance.

Cincinnati Approach, November 5-5-2 Sierra Delta 10 miles east of Cincinnati at 2,500 request entry into the bravo airspace to land at Cincinnati.

November 5-5-2 Sierra Delta, Cincinnati Approach, squawk 2252 and ident.

- Once you observe the code change and the ident, radar identify the aircraft and issue the clearance and vector the aircraft for a visual approach.

November 5-5-2 Sierra Delta, radar contact, 9 miles south of the Cincinnati airport at 2,500, cleared to enter the bravo airspace, fly heading 270, airport is at your one o'clock, 9 miles, report the field in sight.

- Just as an IFR aircraft, once the aircraft reports the field in sight, clear the aircraft for a visual approach.

November 5-5-2 Sierra Delta, cleared visual approach runway 3-6 right.

- When the aircraft reaches about 3 – 5 miles from the airport, instruct the aircraft to contact the tower.

November 5-5-2 Sierra Delta, contact Cincinnati Tower on 1-1-8 point 3.

Class C Usage

- All VFR aircraft are required to contact the appropriate TRACON to enter into the Class C airspace.
- VFR aircraft underneath the surface area ceiling are not required to receive clearance unless they intend to penetrate the airspace.
- Unlike Class B airspace, entry clearances are not given and once two-way radio communications have been established, the aircraft may enter the Class C airspace.
- If you answer a radio call and repeat the aircraft's callsign, two-way radio communications have been established and the aircraft may enter the airspace.

Indianapolis Approach, November 5-5-2 Sierra Delta 12 miles southwest of Indianapolis at 2,500 to land at Indianapolis.

November 5-5-2 Sierra Delta, Indianapolis approach, stand by.

- Now that two-way radio communications have been established, the aircraft may enter the airspace.
- If you are busy and do not want the aircraft to enter the airspace, you must instruct the aircraft to remain outside the Class C.

November 5-5-2 Sierra Delta, Indianapolis approach, remain outside Charlie airspace and stand by.

- Just as in Bravo airspace, issue a squawk and ident to the aircraft.

November 5-5-2 Sierra Delta, Indianapolis Approach, squawk 2252 and ident.

- Aircraft wishing to transition the airspace will be given approval at this time.

November 5-5-2 Sierra Delta, Indianapolis Approach, transition approved, squawk 2252 and ident.

- Once you observe the code change and the ident, radar identify the aircraft.

November 5-5-2 Sierra Delta, radar contact, 9 miles southwest of the Indianapolis airport at 2,500, report field in sight, altimeter 3-0-0-3.

- For transitioning aircraft, issue the altimeter.

November 5-5-2 Sierra Delta, radar contact, 9 miles southwest of the Indianapolis airport at 2,500, altimeter 3-0-0-3.

- Once the aircraft leaves the Class C airspace, terminate radar services.

November 5-5-2 Sierra Delta, leaving my airspace, resume own navigation, radar services terminated, squawk 1-2-0-0, frequency change approved

- VFR aircraft should only be issued vectors and altitudes when necessary for separation from IFR aircraft. Visual separation may be used in lieu of vectors and/or altitudes.
- See Figure 2.1 below.

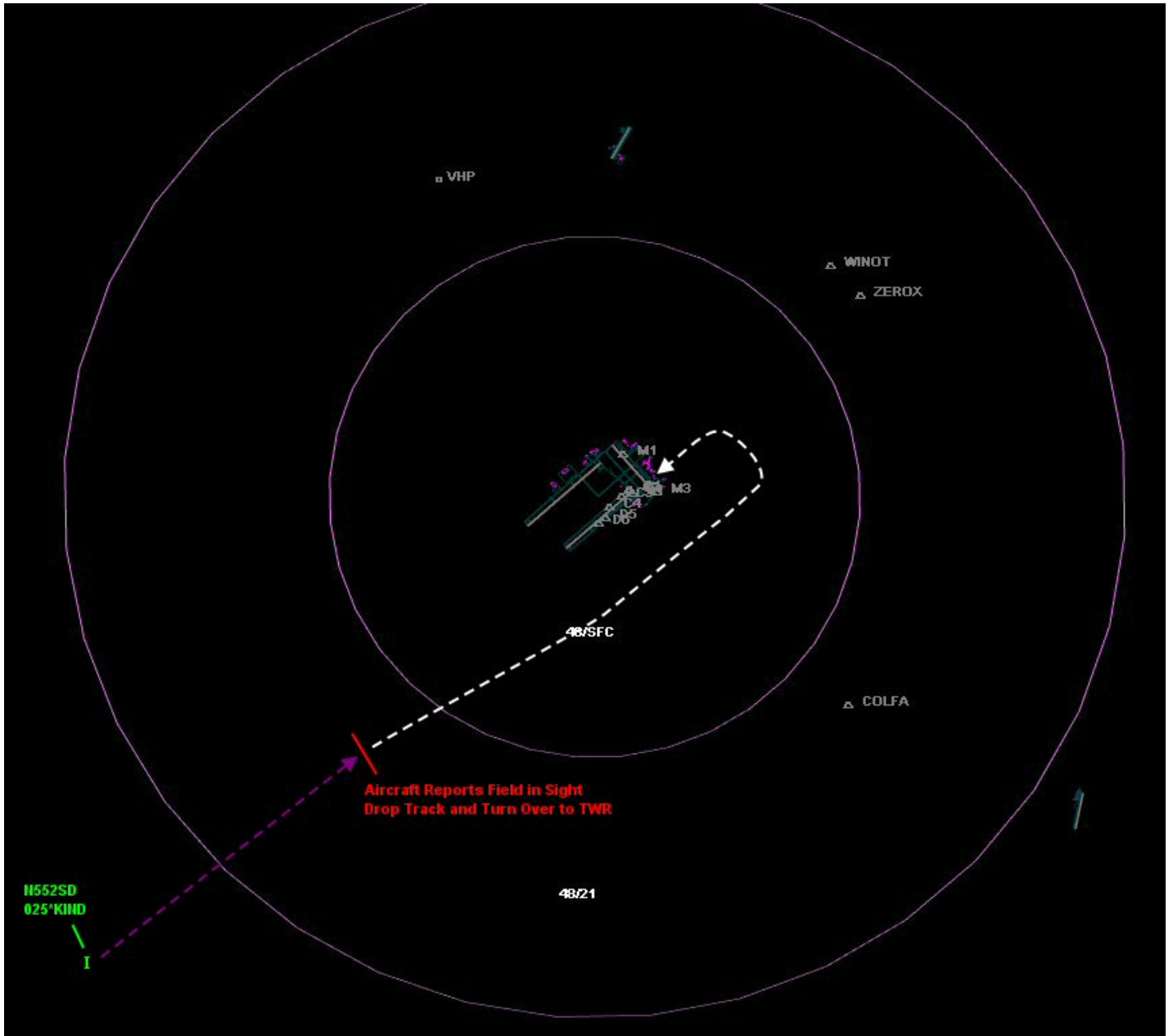


Fig 2.1

- In the figure above, the purple arrow represents the aircraft's flight path under his own navigation when in communications with approach control. The white arrow represents the aircraft's flight path under his own navigation when in communications with the tower.
- Once the aircraft reports the field in sight, the aircraft will be turned over to tower who will issue pattern entry instructions.

Class D Usage

- Class D airspace is tower controlled. Radar services are only provided to arriving and departing IFR aircraft.
- Like Class C airspace, entry into Class D airspace only requires two-way radio communication. The same rules apply as Class C if you need to keep an aircraft outside the Delta surface area.
- VFR aircraft do not require a Mode C transponder and should squawk 1200 within this airspace.
- When the control tower is closed, Class D airspace turns into Class E airspace and VFR aircraft will be instructed to state their intentions on the advisory frequency.

Instructions for Tower

- For Class B airspace, all VFR aircraft wishing to operate within or depart the Class B airspace will be issued a squawk code and be given a clearance through the Bravo airspace. This includes aircraft conducting pattern work.
- Treat departing VFR aircraft as IFR, they must contact departure.
- If an aircraft wishes to conduct VFR pattern work within the Class Bravo airspace, coordinate with the TRACON to see if they want the aircraft to contact them. In most cases, the TRACON will let the tower have control of the aircraft until it becomes necessary for separation. If the TRACON allows the tower to control the aircraft in the pattern, contacting departure is not necessary.
- For Class C airspace, all VFR aircraft departing the airspace will be issued a squawk code.
- As in Class B airspace, the departing aircraft must contact departure.
- Aircraft wishing to conduct pattern work, it is not required to issue the aircraft a squawk code and tower retains control of the aircraft until it wishes to depart the airspace.
- For Class D airspace, the tower retains control of all VFR aircraft and no squawk codes are issued.

IFR Releases

- Unless otherwise stated in facility policies and/or directive, IFR departure releases are not required within Class B and Class C airspaces. This is because Class B and C airports provide IFR services where Class D airports do not. This is known

as a rolling boundary. When the aircraft departs, the beacon change is enough for radar identification.

- For Class D airports, the tower is required to request a release from the appropriate radar facility before allowing an IFR aircraft to depart.

Lunken Tower, November 5-5-2 Sierra Delta at runway 2-1 left, IFR to Indianapolis, ready to go.

November 5-5-2 Sierra Delta, Lunken Tower, hold for release.

- Once you have instructed the aircraft to hold for release, contact the radar facility and state the aircraft callsign, departure runway, and destination.

Cincinnati Approach, Lunken Tower, request release, November 5-5-2 Sierra Delta off runway 2-1 Left, to Indianapolis.

- At this time, approach or center will do one of 3 things, approve the release, issue departure instructions and approve the release, or instruct the tower to hold the aircraft.

November 5-5-2 Sierra Delta, released.

November 5-5-2 Sierra Delta, fly heading 3-6-0, released.

November 5-5-2 Sierra Delta, hold for release, I'll call you back.

- If the release is approved, the tower has 3 minutes to get the aircraft in the air. If the aircraft does not depart within those 3 minutes, the release is void and the aircraft may not depart. Usually approach will call once the 3 minutes have passed. If 3 minutes have passed, the aircraft may not depart, and the tower has to call back for another release.
- Clear the aircraft for take-off and if issued by approach/center, issue the departure instructions to the aircraft.

November 5-5-2 Sierra Delta, wind 1-8-0 at 6, cleared for take-off.

November 5-5-2 Sierra Delta, after departure fly heading 3-6-0, wind 1-8-0 at 6, cleared for take-off.

- At all airports (Class B – D) the tower is required to switch the aircraft over to departure before the aircraft reaches a ½ mile off the departing runway.

References

- This document was written with references to the FAAO 7110.65.
- For more information, see Chapter 5 from the FAAO 7110.65.

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