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CHAPTER 1. CLEARANCE DELIVERY

Section 1: Introduction

For the sake of brevity and the purposes of these SOPs, the use of the phrase “Handoff” implies the transfer of communication to another controller only. An “Automatic Handoff” implies the transfer of a radar track to another controller (F3, F4 radar client functions).

Clearance Delivery’s job is to provide IFR and VFR clearances to pilots at all airports. Clearance delivery coordinates with **APP/DEP** and **CTR** concerning preferred departure routes. The vZBW ARTCC has established departure routes from KBOS and other Class C airports in the airspace. Clearance Delivery **does not** issue any instructions to an aircraft involving the movement of the aircraft. Once the clearance is issued and read back by the pilot, Clearance Delivery hands the aircraft off to the next controller.

Section 2: Overview

Elements of a Proper Clearance

a. All verbal clearances must include "**CRAFT**" –

Clearance limit / **R**oute / **A**ltitude / Departure **F**requency / **T**ransponder.

Clearance Limit - This is almost always the destination airport, though it can also be an IFR fix, if the aircraft is on a composite (IFR / VFR) flight plan.

Route of Flight - This is usually the departure procedure, route, and arrival procedure for an aircraft in a filed flight plan, but may also be a revised route or simply “direct”. If the route has been revised, the new route of flight must be issued.

Altitude - An initial altitude specified by local procedure such as a Standard Operating Procedure and/or Letter of Agreement OR a “Climb Via” instruction if a departure procedure with altitude restrictions has been assigned.

Frequency - The frequency the aircraft will be instructed to tune to after departure.

Transponder - In the real world, transponder codes are computer generated, but for our purposes it should be any code other than the VFR transponder code of 1200. Each digit ranges from 0 to 7 and there are no 8's or 9's in the code.

Section 3: Clearing IFR Aircraft

a. IFR aircraft shall be cleared out of ZBW Airspace via routes and altitudes as prescribed in this and other Standard Operating Procedures, Letters of Agreement with adjacent facilities, and published Departure Procedures.

b. If an IFR aircraft has filed a routing that differs from the preferred routing, politely offer the pilot the preferred routing and amend the aircraft's flight plan accordingly. Always ask the pilot prior to amending his/her flight plan to ensure the pilot is able to fly that particular route (*in the case that the pilot cannot accept the preferred routing, please see below*).

It is of vital importance that an aircraft file a valid flight plan to its destination, so as to expedite that aircraft's trip through the vZBW ARTCC. Preferred routes can be found on this web site, and it is highly recommended that they be printed out, for easy referrals.

- (1) When amending a flight plan, never include a departure procedure in the beginning of the flight plan unless the DP is designated as Pilot Nav or RNAV. The departure procedure is assigned by the clearance delivery controller or the controller handling clearances and does not need to be entered into the flight plan.
- (2) If a pilot is unable to accept a preferred routing, ensure that the aircraft will at least leave the TRACON via the proper departure exit gate.

*Example: A pilot files a flight plan, departing KPVD for KORD and has filed the following route: **BOS.YUL.EWD.QRX.LAX.SEA.FMTT***

- I. Kindly offer the preferred route to KORD and if the aircraft is able to accept it, amend his/her flight plan to reflect the change. If he/she is unable to accept the new routing, route the aircraft out of the proper departure exit gate and then "as filed." In this case, PUT is the proper departure exit gate.
- II. If the aircraft is unable to navigate to a certain navigational aid or fix, or if the aircraft is unable to navigate to the initial departure exit gate, coordinate with the departure controller (or Approach if DEP is offline) or center controller (if the navigational issue takes place outside of the TRACON airspace) to accommodate the aircraft.

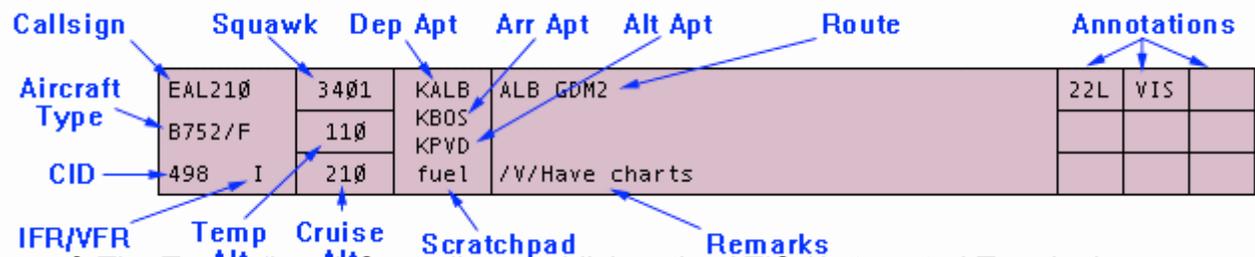
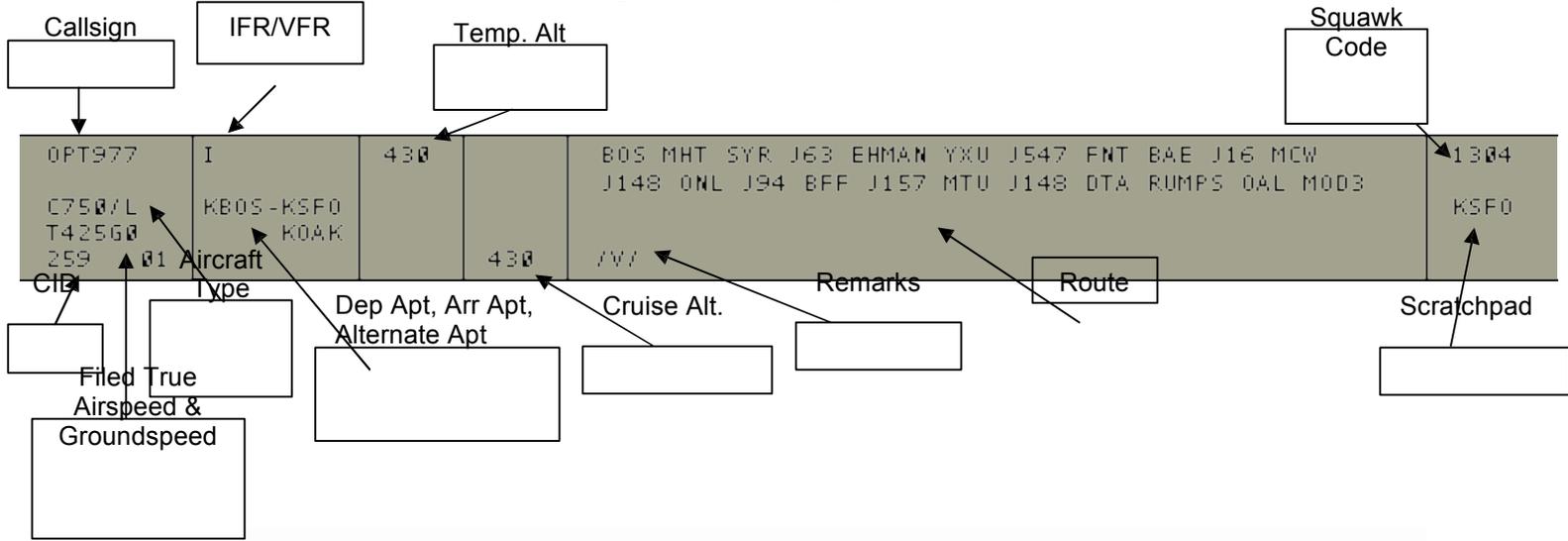
c. Aircraft that intend on landing and file a flight plan to a New York Metro airport (KEWR, KLGA, KJFK) **must** fly a preferred routing during busy periods of the day and/or evening hours when vZNY controllers are online per our [Letter of Agreement with vZNY \(NY ARTCC\)](#). This restriction ensures aircraft entering the N90 TRACON are properly separated from outbound traffic and all NY-bound departures are properly sequenced. Consult an instructor, mentor or higher controller regarding variants to these preferred routes if/when one is presented.

d. All IFR aircraft shall be cleared to expect a proper final cruise altitude (x) minutes after departure. This proper cruise altitude shall be issued based on the direction of flight and all flight plans shall reflect this proper final cruise altitude considering the direction of flight.

*An acronym to remember this altitude rule is: **NEODD & SWEVEN**. See [7110.65R 4-5-1](#).*

- (1) Aircraft with magnetic course of zero degrees through 179 degrees shall be issued any odd thousand foot MSL altitude (such as 25,000, 27,000, or 29,000) up to and including FL410 appropriate for the distance of flight.
- (2) Aircraft with a magnetic course of 180 degrees through 359 degrees shall be issued any even thousand foot MSL altitude (such as 24,000, 26,000, or 28,000) up to and including FL410 appropriate for the distance of flight.
- (3) Due to DRVSM (Domestic Reduced Vertical Separation Minimum) which is in effect from FL290 up to and including FL410, aircraft **above** FL410 shall be issued altitudes in 4000 foot intervals:
 - I. Aircraft with magnetic course of zero degrees through 179 degrees shall be issued an odd thousand foot MSL altitude in 4000 foot intervals starting at 41,000 (then 45,000, 49,000 or 53,000 etc) appropriate for the distance of flight.
 - II. Aircraft with magnetic course of 180 degrees through 359 degrees shall be issued an odd thousand foot MSL altitude in 4000 foot intervals starting at 43,000 (then 47,000, 51,000 or 55,000 etc) appropriate for the distance of flight.

e. Decoding a flight progress strip is very important as a Clearance Delivery Controller. Below are two flight strips displayed in ASRC and VRC, respectively.



f. The Tower (local) Controller establishes the ATIS (Automated Terminal Information System) for the tower cab positions. A clearance delivery and/or ground controller shall set his/her ATIS to match the tower controller's ATIS.

(1) Effective October 12, 2006, the following items may **not** be included in a controller's ATIS per the VATSIM Global ATIS Policy:

- I. Controller Name and/or Rating
- II. Controller Frequency (\$com1 variable)
- III. Raw METAR data

(2) Use ATISMaker in conjunction with the following template to set the ATIS:

*Information %id%: Winds \$wind(%icao%) Vis %vis% %precip%
 Sky %clouds% Temp %temp% Dewpt %dew% Alt \$altim(%icao%)
 %runways%
 Read back all hold short instructions. Advise on initial contact you have %id%*

Section 4: IFR Clearance Examples:

a. The following is an example for clearing an IFR aircraft (remember the acronym CRAFT):

NWA319	1300	KBTW	ALB PWL IGN V157			
B757/J	3000	KLGA				
988 I	3000		+VFPS+/V/			

(1) “Northwest three nineteen, cleared to the **La Guardia Airport** via the **Burlington 4 departure**, radar vectors **Albany** as filed. Maintain **one zero thousand**, expect **flight level three zero zero** one zero minutes after departure. Departure frequency **one two one point one**, squawk **one four four one**.”

(2) A controller may use aliases to assist when issuing IFR clearances via text. A common alias used is the **.cld** command:

.cldvec \$1 \$2 .thenfp .cldia \$3, .cldfreq \$4

I. Using the above alias, if a controller radioselects the aircraft and types:

.cld BTV4 ALB 10000 9A <enter>

(Note: 9A is the BTV_APP CID, if no approach control is online departure may be with BOS_CTR. If this is the case, use the BOS_CTR CID)

...the following will be transmitted on frequency: “NWA319, cleared to KLGA via the BTV4 DP, radar vectors ALB, then as filed, maintain 10000, expect FL300 10 min after dep, departure freq 121.10, squawk 1441.”

b. In the case that a controller is clearing an aircraft on a departure procedure that has altitude, speed, or heading restrictions (RNAV DPs for example) controllers may utilize the instruction “Climb Via” which instructs the pilot to follow all published restrictions. The following is an example of a clearance to an aircraft departing KPWM on the NUBLE2 RNAV departure:

(1) Air Wisconsin three eight nine seven, cleared to Reagan National Airport via the NUBLE two RNAV departure, Calverton transition, then as filed. Climb via SID. Departure frequency one one niner point seven five, squawk four seven zero one.

c. A pilot must read back **at least** a squawk code for a standard IFR clearance. If an amended clearance is issued (including full route change), a pilot must read back the entire clearance.

d. If multiple aircraft are requesting clearance, the clearance delivery controller shall prioritize aircraft in the order in which they called and by issuing clearances to aircraft that do not require any amendment (or only slight amendment) first. Handling these aircraft first will allow the delivery controller to correct flight plans that were incorrectly filed and relay the amended clearance to the aircraft.

A controller does not have to say “Callsign, I have your clearance, advise ready to copy” unless the aircraft was previously instructed: “Clearance on request, standby.”

Once an aircraft has received their clearance, the clearance delivery controller shall handoff the aircraft to the ground controller (or tower, or the next highest position handling ground operations if any) for pushback and taxi.

Section 5: IFR Clearance Examples – PDC

a. Pre-Departure Clearances (PDCs) **may be** utilized when clearing **IFR** aircraft from KBOS, KALB, KPVD, and KBDL. Controllers do not have to utilize PDCs, they are simply another option for controllers, especially in high workload situations where the PDC can facilitate operational performance.

b. When using PDCs, all IFR aircraft shall still be cleared out of ZBW Airspace via routes and altitudes as prescribed in this and other Standard Operating Procedures, Letters of Agreements with adjacent facilities, and published Departure Procedures as stated in Section 3 of this chapter.

c. In real-world aviation, PDCs are the most up-to-date technology in regards to issuing IFR clearances to aircraft. In the real-world they are text messages sent via ACARS (a system utilized by pilots through their flight management computer). For ZBW clearances, PDCs will be sent by private message to the pilot.

d. PDCs include all information contained in a standard CRAFT clearance, however, aircraft are not required to readback anything to the controller. This is one reason it is suggested that PDCs only be used when deemed necessary.

e. There are many different versions of the PDC clearance located in the ZBW alias file (be sure to review all of them before use). They vary depending on type of departure, whether “climb via” is being assigned, and more.

Section 6: Clearing VFR Aircraft

a. VFR aircraft shall **NEVER** receive their clearance via PDC.

b. VFR aircraft shall be cleared out of Class Charlie or Delta Airspace **at or below 2500 feet AGL (or as adjusted for airport elevation)** unless otherwise specified in facility SOP or Letter of Agreement.

c. VFR aircraft may or may not have an associated flight filed flight plan. If a VFR aircraft requests clearance and does not have an associated flight strip, the clearance delivery controller shall create a VFR flight strip containing the following information: Aircraft Type, Departure airport, Destination airport (if applicable), direction of flight, and requested cruise altitude.

d. VFR aircraft may request a specific cruise altitude. If a delivery controller encounters such a request, ensure that the altitude conforms to the proper cruising altitude for Visual Flight Rules (VFR) and ensure the requested altitude is entered into the “Cruising altitude” field of their flight strip:

(1) VFR aircraft with magnetic course of zero degrees through 179 degrees shall fly any odd thousand foot MSL altitude plus 500 feet above 3,000 feet AGL (such as 3,500, 5,500, or 7,500) up to, but not including FL180.

(2) VFR aircraft with a magnetic course of 180 degrees through 359 degrees shall fly any even thousand foot MSL altitude plus 500 feet above 3,000 feet AGL (such as 4,500, 6,500, or 8,500) up to, but not including FL180.

e. The departure frequency for VFR departures is almost always the same as the departure frequency for IFR departures.

f. VFR shall be assigned squawk codes in a similar fashion as assigned for IFR aircraft. No VFR squawk code banks are used.

Section 7: VFR Clearance Examples:

a. The following is an example for clearing a VFR aircraft:

N470U	1303	KPVD	WEST			
C172/G	045	KBDL				
988 V	045		/V/			

- (1) “Cessna four seven zero uniform, maintain VFR **at or below three thousand**. Departure frequency **one three five point four**, squawk **five five four two**.”

- (2) A controller may use aliases to assist when issuing VFR clearances via text. A common VFR alias used is the **.cldvfr** command:

.cldvfr maintain VFR at or below \$1 .cldfreq \$2

Using the above alias, if a controller radioselects the aircraft and types:

.cldvfr 3000 5A <enter>

...the following will be transmitted on frequency: *“N470U, maintain VFR at or below 3000, departure frequency 135.40, squawk 5542.”*

(Note: 5A is the PVD_APP CID, if no approach control is online departure may be with BOS_CTR. If this is the case, use the BOS_CTR CID)

- (3) When controlling a Class D Tower, VFR aircraft which do not request flight following should only be issued taxi instructions and applicable weather information. No VFR clearance, departure frequency or squawk code shall be issued; however, direction of flight should be noted for initial departure instructions.

If a controller radio selects an aircraft and types:

.cldvfru 2500 <enter>

...the following will be transmitted on frequency: *“N470U, maintain VFR at or below 2500, report ready for taxi.”*

CHAPTER 2. GROUND CONTROL

Section 1: Introduction

Ground Control's job is to monitor and control general surveillance of the airport movement area, and aids the local controller in scanning the active runways. If the Clearance Delivery position is not staffed, GND issues IFR and VFR clearances. Ground Control also coordinates with TWR to receive aircraft exiting active runways and to handoff departures for takeoff clearance.

A ground controller must recognize the active runways, and quickly determine the most efficient way to taxi various aircraft to the active runway(s). Each ground controller shall refer to and use any preferred taxi routes provided in area SOPs as long as practicable to ensure a safe and efficient taxi to the active runway. The ground controller must also coordinate with tower [or local] controller to determine where departing aircraft shall be handed off.

Section 2: Taxiing Aircraft

a. After an IFR or VFR departure has been given clearance, most aircraft will contact the ground controller for pushback and start-up. The following is the proper phraseology for such clearance:

(1) *"Delta two eleven, pushback and start-up approved. Advise this frequency ready to taxi with information Sierra."*

After these two tasks are complete, the aircraft will then request taxi clearance. The aircraft requesting taxi clearance should receive the ATIS information set by the ground controller. If a pilot does not advise on his initial contact with Clearance Delivery that he has the specific ATIS, advise the pilot which ATIS code is current. If the aircraft still does not advise he has this information, include the winds and/or altimeter setting in the taxi clearance. The following is the proper phraseology for a normal taxi clearance:

(2) *"Delta two eleven, runway niner, taxi via Bravo, Kilo, Mike."*

If a ground controller includes a hold short instruction in the taxi clearance, the following clearance may look similar to the following:

(3) *"Delta two eleven, runway two seven, taxi via Kilo, Charlie, Delta. Hold short of runway three three left.."*

In this clearance, which contains a hold short instruction, the pilot **is required to** read back the hold short instruction.

Section 3: Coordinating with Tower

a. A ground controller must maintain clear communication with the tower controller to ensure safe operation. This communication shall be used to coordinate (but not limited to) the following:

(1) Point of handoff – Location where outbound taxiing aircraft shall be handed off to the tower controller (either moving or holding short of a runway or taxiway).

I. The Transfer of Control Point (TCP) between Tower and Ground is the **terminal side of the closest active runway** unless otherwise stated by the tower controller.

(2) VFR departure requests

(3) Other unusual requests

Section 4: Sequencing Ground Movements

a. A ground controller shall properly sequence aircraft taxiing to active runway(s) to maximize operations and minimize wake turbulence delays.

For example, if a B738 (Large, turbo-jet) and B190 (Small, multi, non-jet) both request taxi clearance, instruct the B738 to taxi behind the B190 to the departure runway. By taxiing the B190 to the runway first will greatly minimize the delays that would be induced by taxiing and departing the B738 first. A more detailed explanation to this is found in the Tower Chapter, Separation Requirements.

Section 5: Handling Ground Movements

a. Many instructions may be issued to aircraft taxiing on the ground. These instructions may be issued to help controllers manage and coordinate traffic taxiing to and from active runways.

(1) **“Hold short”** – Instructs an aircraft to hold short of a runway, taxiway, or other movement area.

(2) **“Hold position”** – Instructs an aircraft to stop all movement. Permission to **“continue taxi”** shall be issued when the aircraft may begin taxiing again.

(3) **“Give way”** – Instructs an aircraft to give way to another aircraft or vehicle on a taxiway, runway, or other movement area.

(4) **“Follow...”** – Instructs an aircraft to follow another aircraft or vehicle to a runway or destination on the airport.

b. Progressive taxi instructions may be requested by newer pilots or those who are unfamiliar with the taxiway and runway layout at their airport. A ground controller shall always accommodate these requests except in abnormal situations.

Progressive taxi phraseology may be more informal than a normal taxi instruction to ensure clear communication. A controller shall issue simple instructions and if necessary, issue taxi instructions with cardinal directions to aid a pilot to the departure runway, or destination on the airport. A ground controller may also have an aircraft follow another to a runway or destination on the airport to aid a pilot.

CHAPTER 3. LOCAL (TOWER) CONTROL

Section 1: Introduction

Local Control's duty is to provide separation between arriving and departing aircraft and is responsible for the constant surveillance of the airport traffic and movement areas. When Ground Control is not online, Tower is responsible for **all** movement areas. Local control also issues clearances and control instructions to maintain proper sequencing and separation of airborne aircraft. Tower is also responsible for selecting the active runway(s) and maintaining a current ATIS (Automated Terminal Information Service).

Section 2: Airspace

A tower responsible for airports within class C or D airspace, unless otherwise specified in a facility SOP or Letter of Agreement is authorized to provide service within the area: **2,500' AGL and below, 5nm from the airport reference point (ARP)**.

Section 3: Responsibilities

- a. The first priority of the Local Controller is the separation of airborne traffic.** The Local Controller must ensure proper separation between arriving and departing aircraft while maintaining an expeditious traffic flow.
- b.** The Local Controller is directly responsible for coordinating with Ground, Departure, and Approach Control. If Ground Control and/or Clearance Delivery are not staffed, the Local Controller also performs the duties of those positions.
- c.** The Local Controller is also expected to have a thorough understanding of the instrument approach procedures at the airport they are controlling at.
- d.** Unless otherwise specified in a facility SOP, Letter of Agreement or verbal agreement with the controller providing approach services, the local controller is responsible for obtaining a release for all IFR aircraft departing into the approach controllers airspace

Section 4: Normal Operations

a. Takeoff Clearances

- (1) Workload permitting, the local controller should include wind direction and velocity in takeoff clearances.
- (2) The proper phraseology for such an instruction:
 - I. *“Departure instructions, wind, runway (number), cleared for takeoff.”*
 - II. **Example:** *“US Air four forty two, after departure fly runway heading, wind zero four zero at one three, runway two-four, cleared for takeoff.”*
- (3) The local controller shall hand-off departing aircraft to departure control once airborne.

b. Landing Clearances

- (1) Workload permitting, the local controller should include wind direction and velocity in landing clearances.
 - I. *“Wind, runway (number), cleared to land.”*
- (2) Inform inbound aircraft of preceding traffic for the same, parallel, or intersecting runway(s).
- (3) If an aircraft will depart the same, parallel, or crossing runway(s) prior to an aircraft’s arrival, inform the inbound aircraft of the departing aircraft.
 - II. **Example:** *“US Air four forty two, number two following a Boeing seven thirty seven on short final, wind zero three zero at seven, runway two two left, cleared to land. Traffic will depart runway two two right prior to your arrival.”*

c. Clearing the Runway

- (1) Issue runway exiting or taxi instructions once an aircraft has touched down and is slowed to a reasonable speed (<80kts).
- (2) Aircraft should not be instructed to contact ground control until clear of any active runways and on the terminal side, unless:
 - I. The clearance specifically states to cross the runway and **then** contact ground control:
 - II. **Example:** *“Jet Blue four forty seven, next left when able, cross runway two two right, **then** contact ground point niner on the other side.”*

Section 5: Line Up and Wait (LUAW) Instructions

Line Up and Wait (LUAW) is used by ATC to inform a pilot to taxi onto the departure runway, line up in takeoff position and wait (hold their position). It is not authorization for takeoff. It is used when takeoff clearance cannot immediately be issued because of traffic or other reasons. Finally, it is used for an imminent departure, thus if there will be any significant delay before a takeoff clearance can be issued, do not issue a LUAW instruction.

- (1) When an aircraft is authorized to LUAW, **inform it of the closest traffic** that is cleared to land, touch-and-go, stop-and-go, or unrestricted low approach on the same, intersecting, or parallel runway(s).
- (2) The LUAW instruction **may not** be issued between sunset and sunrise to aircraft at an intersection except when authorized by a waiver in a facility specific SOP.
- (3) Do not clear an aircraft to LUAW if an aircraft has been cleared to land, touch-and-go, stop-and-go, option or unrestricted low approach on the same runway. Additionally, landing clearances shall be withheld until any TIPH aircraft begins their takeoff roll (7110.65 [§3-9-4\(c\)](#)).
- (4) The proper phraseology for such instructions:
 - I. *“Runway (number), line up and wait. Traffic (position).”*
 - II. *“United five sixty two, runway niner, line up and wait. Traffic is a Boeing Seven Thirty Seven, short final for the crossing runway.”*
 - III. *“Jet Blue twelve twenty six, continue approach. Traffic holding the crossing runway.”*

Section 6: Required Separation and Wake Turbulence

a. Provide separation between aircraft as described in 7110.65 [§3-9-6](#), [3-9-7](#), [3-9-8](#), [3-10-3](#), [3-10-4](#).

b. Wake turbulence procedures shall be followed in accordance with 7110.65 [§2-1-19](#).

- (1) Issue wake turbulence cautionary advisories and the position, altitude, and direction of flight of the heavy jet or B757 to those aircraft defined in 7110.65 [§2-1-20](#).
- (2) Issue wake turbulence cautionary advisories to any aircraft if, in your opinion, wake turbulence may have an adverse effect on that aircraft. When traffic is known to be a heavy aircraft, include the word “heavy” in this advisory.

Section 7: Intersection Departures

a. Intersection departures can be an effective tool to sequence departing aircraft. Commuter and propeller aircraft commonly use this operation.

- (1) Intersection departures may be conducted at any time of the day; however, additional caution should be exercised at night.
- (2) The local controller shall inform any traffic holding in position full length of any aircraft departing from an intersection of that runway.

Section 8: Missed Approach Procedures (MAPs)

a. Missed Approach Procedures are published on Instrument Approach Procedures (IAPs), however the local controller may also issue alternate instructions to aircraft executing a missed approach.

- (1) The proper phraseology for a missed approach instruction is as follows:
 - I. *“Delta two twenty one, fly the runway one four missed approach procedure as published.”*
- (2) If an alternate instruction is used, the proper phraseology for such an instruction is as follows:
 - I. *“Delta two twenty one, fly runway heading, climb and maintain three thousand. Contact departure on one three three point zero.”*
 - II. If both departure and approach control are online, the aircraft conducting the missed approach shall be handed off to departure control.
- (3) **No departures may be released after an aircraft executes a missed approach until the departure (or approach) controller advises that departures may be released.**

Section 9: Land and Hold Short Operations (LAHSO)

a. Land and Hold Short Operations are used when surface wind and arrival volume dictate the simultaneous use of runways at an airport that is approved for LAHSO operations. Please check your area SOP for LAHSO information at your field.

- (1) The approach controller may query aircraft to ascertain if they are able to land and hold short of a runway. If an aircraft is able to hold short of a runway, such information will be coordinated with the local controller before an aircraft is handed off to the tower frequency.
- (2) The Land and Hold Short aircraft will be cleared to land first.
- (3) If an aircraft is cleared to land and hold short of an intersecting runway, the pilot **must** read back the hold short instruction.
- (4) Proper phraseology for a LAHSO clearance is as follows:
 - I. *“Speedbird three three seven, wind two five zero at one three, runway two two left, cleared to land. **Hold short of runway two seven.**”*
- (5) Inform aircraft landing full length of any aircraft inbound for an intersecting runway that will hold short of the runway intersection.
 - I. Proper phraseology for such an instruction is as follows:
*“Cair ninety nine, wind two five zero at one three, runway two seven, cleared to land. **Traffic landing runway two two left will hold short of your intersection.**”*

Section 10: CAT II / III Operations

a. When weather conditions are below CAT I minimums, CAT II and/or III approaches may be conducted on **the CAT II/III runway** regardless of surface wind.

- (1) The local controller shall include any RVR (Runway Visual Range) distance(s) in all landing clearances. Proper phraseology for such a clearance is as follows:
 - I. *“Continental eight eighty seven, wind zero three zero at one five, **runway six RVR three thousand five-hundred variable five thousand five-hundred.** Runway six, cleared to land.”*

Section 11: VFR Aircraft Operations

- a. The [class C/D] local controller shall separate all IFR aircraft from other VFR and IFR aircraft.
- b. VFR departures
- (1) If a VFR departure will remain within Towers airspace:
 - I. The local controller shall assume responsibility of the aircraft. When the aircraft reaches the tower airspace boundary, the local controller shall terminate service of the aircraft, unless the pilot requests a handoff to approach control for flight following.
 - (2) If a VFR departure will climb above Towers airspace:
Handoff the aircraft to departure control.
 - (3) Departure instructions shall always be given to VFR aircraft by issuing a tower assigned heading, an exit in relation to the traffic pattern or a cardinal direction of flight.
 - I. *“Piper two two two six zulu, fly runway heading, wind calm, runway one five, cleared for takeoff.”*
 - II. *“Cessna niner five zero five foxtrot, right downwind departure approved, wind two five zero at six, runway two seven, cleared for takeoff.”*
 - III. *“Cherokee two eight romeo tango, north west departure approved. wind calm, runway three six, cleared for take off.”*
 - (4) Headings shall not be issued by a Class D Tower facility to VFR aircraft. Departure instructions will always be issued in relation to the traffic pattern or a cardinal direction of flight
 - I. *“Cessna four seven zero uniform, straight out departure approved. Wind calm, runway two six, cleared for takeoff.”*
 - II. *“Piper three papa xray, left downwind departure approved. Wind calm, runway two four, cleared for takeoff.”*
 - III. *“Diamond star four eight romeo quebec, north east departure approved. wind calm, runway three three, cleared for take off.”*
 - (5) No tower position within vZBW will provide radar service or radar separation service to any aircraft unless specified and outlined in an area SOP

c. Aircraft requesting to remain in, or entering the pattern

- (1) The local controller shall issue either left or right closed traffic in the takeoff clearance.
 - I. *“Cessna five two eight six charlie, wind two four zero at seven, runway two four, cleared for takeoff. Make right closed traffic.”*
- (2) The local controller shall issue traffic advisories to arriving or departing aircraft that may fly in close proximity to pattern aircraft. Pattern aircraft shall also be issued a traffic advisory of arriving and departing traffic.
 - I. Traffic advisories shall be phrased as defined in [7110.65 §2-1-21](#).
- (3) The local controller may issue various separation techniques including, but not limited to, the following maneuvers:
 - I. 360 degree turn
 - II. 270 degree turn
 - III. Extended downwind
 - IV. S-turns on final approach
 - V. Short approach
- (4) The local controller shall point out the field and issue an entry in relation to the traffic pattern to arriving aircraft:
 - I. *“Cessna five three hotel, Provincetown is at your twelve O’Clock and 5 miles. Enter a right downwind for Runway two five. Report midfield, downwind.”*
 - II. *“Piper four eight niner uniform, Nantucket is at your one O’Clock and 7 miles. Make straight in approach, Runway two four. Report final.”*