



# BOSTON ARTCC (vZBW) STANDARD OPERATING PROCEDURE

## BOSTON LOGAN INTERNATIONAL (KBOS)

<b>RELEASE RECORD</b>			
<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Notes</b>
1.0	10 Dec 2006		Initial Release
1.1	30 Nov 2007	PB	General/Maintenance update
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## 1.0 Overview

### 1.1 Welcome

1.1.1 Welcome to the big time! Boston Logan International Airport is ZBW's largest and most complex airport and airspace, and our only Class B airport/airspace. It is also our only airport designated as a Major Facility.

### 1.2 Callsign Usage and Frequency Delegation

Position Callsign	Sector/Position Name	Frequency	Vox Channel	Note(s)
BOS_DEL		121.650	BOS_121.650	
BOS_GND		121.900	BOS_121.900	
BOS_R_GND	Ramp/Gate Control	134.050	BOS_134.050	4
BOS_TWR		128.800	BOS_128.800	1
BOS_W_TWR	Local West	128.800	BOS_128.800	4
BOS_E_TWR	Local East	132.220	BOS_132.220	4
BOS_APP		118.250	A90_118.250	1
BOS_N_APP	Rockport	118.250	A90_118.250	
BOS_S_APP	Plymouth	127.200	A90_127.200	2, 4
BOS_B_APP	Bedford	124.400	A90_124.400	4, 5, 6
BOS_L_APP	Lynch	124.100	A90_124.100	4, 5, 6
BOS_F_APP		126.500	A90_126.500	1, 3, 4
BOS_F1_APP	Final One	126.500	A90_126.500	3, 4
BOS_F2_APP	Final Two	119.650	A90_119.650	3, 4
MHT_APP	Fitzy	124.900	A90_124.900	
MHT_W_APP	West	134.750	A90_134.750	4
BOS_DEP	Initial Departure	133.000	A90_133.000	4

#### Notes:

1. To be used when positions are combined
2. The \_S\_ callsign designator is typically used for a student. If there is a split and a student is working South, use BOS\_SS\_APP
3. Final Approach Sector
4. Rarely used except for (major) events
5. Not to be used unless both Rockport and Plymouth are being used, and additional sectorization is still required
6. Often used for satellite airports

### 1.3 Runway Configurations

1.3.1 Runway Configurations and Selection are at the discretion of the Local controller, and are based primarily on weather conditions. There are no limits on what configuration is to be used; however, safety and operational efficiency must be considered when selecting runways to be used.

1.3.2 Surface winds and instrument approach minima shall be the primary criteria used for runway selection.

1.3.2.1 When strong surface winds from the southeast are present, aircraft shall land **runways 15R/L and depart runway 9**. Due to the traffic flow and low arrival acceptance rate, this runway configuration is rarely used.

1.3.3 The following are the most common runway configurations at KBOS:

1.3.3.1 **Land: 4R / 4L, Depart: 9 (KBOS Calm Wind Configuration)**

1.3.3.1.1 Taxi jet aircraft to Runway 9. Taxi props to Runway 4L.

1.3.3.1.2 Runway 4R may be used for departures for operational necessity. If an aircraft requests 4R, Ground shall coordinate with the Local controller. If approved, Ground shall taxi such aircraft to Runway 4R to hold at the 4L Approach Hold Point.

1.3.3.1.3 Runway 9 is never used for arrivals.

1.3.3.2 **Land: 22L / 27, Depart: 22R**

1.3.3.2.1 Taxi all aircraft to Runway 22R for departure.

1.3.3.2.2 If an aircraft requests 22L, Ground control shall taxi such aircraft to Runway 22L to hold short of 22R.

1.3.3.2.3 Landing on Runway 22R is prohibited between 2300 and 0600 Local.

1.3.3.3 **Land: 27, Depart: 33L (/27)**

1.3.3.3.1 To maximize capacity and efficiency, the normal configuration will be Land 27 / Depart 33L

1.3.3.3.2 When load is lower, Local may choose to depart both 27 and 33L.

1.3.3.3.2.1 Aircraft with a departure gate of GLYDE, NELIE, LUCOS, FRILL, DEDHM, ACK, BOSOX or DRUNK will use Runway 27 for departure.

1.3.3.3.2.2 Aircraft with a departure gate of MHT, LBSTA or ENE will use Runway 33L for departure.

1.3.3.3.2.3 Exceptions shall be coordinated with Departure.

1.3.3.4 **Land: 33L, Depart: 15R (KBOS Nocturnal Procedure Configuration)**

1.3.3.4.1 In effect between 0000 and 0600L for noise abatement

1.3.3.4.2 Only used when tailwind component is less than 10 Knots

- 1.3.4 Aircraft may request a runway that is not active; such operations must be properly coordinated between Ground, Local and Approach.
- 1.3.5 For Noise Abatement:
  - 1.3.5.1 Runway 4L shall not be used for jet departures
  - 1.3.5.2 Runway 22R shall not be used for jet arrivals
  - 1.3.5.3 Landing on Runway 22R is prohibited between 2300 and 0600L local
  - 1.3.5.4 A nocturnal procedure (between 0000 and 0600L) configuration is used (Land 33L, Depart 15R) whenever light traffic conditions exist, and tailwind components will not exceed 10 knots. If a pilot requests another runway more aligned with the wind, traffic permitting, the request must be approved.
- 1.3.6 Runways 4L/R and 9 are the **calm wind** runways. Calm winds are defined as less than 5 knots at KBOS.
- 1.3.7 Runway 14/32 shall be used by props and small jets only. Runway 14 shall be used for departures only, and Runway 32 shall be used for arrivals only.
- 1.3.8 There are no departures on runways 15L/33R. However, VFR closed pattern operations are authorized at the discretion of the Local controller.
- 1.3.9 Runway 4R is a CAT II and CAT III runway. Runway 33L is a CAT II runway. See 7110.65 3-5-1 for more information on runway selection.

#### 1.4 ATIS

- 1.4.1 The Local Controller establishes the ATIS (Automated Terminal Information System) for the tower cab positions. Clearance Delivery and/or Ground controllers shall either set their Controller Info to match the Local controller's ATIS, or simply refer to the ATIS. Referring to the ATIS provides the benefit that controllers do not need to keep their ATIS code updated.
  - 1.4.1.1 Use ATISMaker in conjunction with one of the following templates to set the Controller Info:

*%icao% information %id% available on 135.000*

Or

*%icao% ATIS is available on 135.000*
- 1.4.2 The Local controller may, at his discretion, delegate the recording of the ATIS to Ground or Clearance Delivery. However, neither Ground nor Clearance Delivery controllers are authorized to record/publish an ATIS without the presence and delegation from a controller providing Local service.

## 2.0 Clearance Delivery

### 2.1 General

- 2.1.1 IFR aircraft shall be cleared out of Boston Airspace via routes and altitudes as described in this Standard Operating Procedure, Letters of Agreement with adjacent facilities, and published Departure Procedures.

### 2.2 Clearing IFR Aircraft

#### 2.2.1 Instrument Departure Procedures

##### 2.2.1.1 Radar Vektored Departure Procedures

- 2.2.1.1.1 LOGAN (Radar Vector): Most commonly used Departure Procedure issued to aircraft departing KBOS. As it is a radar vector departure procedure, there are no transitions. Jet aircraft shall be cleared to maintain an initial altitude of 5,000 feet and expect their cruise altitude ten (10) minutes after departure. Prop aircraft shall be cleared to maintain an initial altitude of 3,000 feet and expect their cruise altitude ten (10) minutes after departure.

*PHRASEOLOGY: “[Callsign], Cleared to [Destination Airport], Logan Five Departure, [Initial Fix], as filed. Maintain [Initial Altitude], Expect [Cleared/Filed Altitude] One Zero minutes after departure, Departure Frequency [Departure or Unicom Frequency], Squawk [Assigned Transponder Code].”*

*EXAMPLE: “American Four Twenty-Seven Heavy, Cleared to Los Angeles International Airport, Logan Five Departure, Manchester, as filed. Maintain Five Thousand, expect Flight Level Three Eight Zero One Zero minutes after departure, Departure Frequency One Three Three Point Zero, Squawk One Three Zero One.”*

## 2.2.1.2 RNAV Departure Procedures

- 2.2.1.2.1 PATSS (RNAV) – Issued to RNAV-capable, turbojet aircraft departing Runway 4R, 9 or 15R, proceeding westbound. BOSOX, GLYDE, or NELIE are the standard departure gates.
- 2.2.1.2.2 CELTK (RNAV) – Issued to RNAV-capable, turbojet aircraft departing Runway 4R, 9 or 15R, proceeding eastbound or southeastbound. FRILL is the standard departure gate.
- 2.2.1.2.3 LBSTA (RNAV) – Issued to RNAV-capable, turbojet aircraft departing Runway 4R, 9 or 15R, proceeding northeastbound. LBSTA is the standard departure gate.
- 2.2.1.2.4 SSOXS (RNAV) – Issued to RNAV-capable, turbojet aircraft departing Runway 4R, 9 or 15R, proceeding southbound. LUCOS or MVY are the standard departure gates.
- 2.2.1.2.5 BRUWN (RNAV) – Issued to RNAV-capable, turbojet aircraft departing Runway 4R, 9 or 15R, proceeding southbound or southeastbound. ACK is the standard departure gate.
- 2.2.1.2.6 HYLND (RNAV) – Issued to RNAV-capable, turbojet aircraft departing Runway 4R, 9 or 15R, proceeding northwestbound. MHT is the standard departure gate.
- 2.2.1.2.7 WYLYY (RNAV) – Issued to RNAV-capable, turbojet aircraft departing Runway 27, filed with either the LUCOS (HI) or BOSOX (LO) transition.

*PHRASEOLOGY: “[Callsign], Cleared to [Destination Airport], [RNAV] Departure, [Transition] Transition, as filed....”*

*EXAMPLE: “Continental Sixty-Five Heavy, Cleared to Denver International Airport, HYLAND ONE Departure, Manchester Transition, as filed. Expect Flight Level Three Eight Zero One Zero minutes after departure, Departure Frequency One Three Three Point Zero, Squawk One Three Zero One.”*

COA65	1301	KBOS	HYLND1 MHT SYR J63 EHMAN YXU J16 BAE			
H/A306/E	380	KDEN	FOD OBH J10 LBF			
930 I	380	KCOS	SEL/AGCM OPR COA/195SOB 44TSD ...			

## 2.2.2 Aircraft Remaining Within A90

- 2.2.2.1 All aircraft requesting a clearance to an airport within the Boston TRACON airspace will be cleared to the destination via radar vectors to maintain 3,000 feet.

- 2.2.3 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. [Click here to review the Boston Preferred Routes system.](#) *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 Boston ARTCC. Preferred routes can be found on the [Boston Preferred Routes system](#), and it is highly recommended that they be printed out, for easy reference. If a pilot is*

*unable to accept a preferred routing, ensure that the aircraft will at least leave the TRACON via the proper departure gate.*

- 2.2.4 When amending a flight plan, do not include a departure procedure (DP) in the flight plan or strip unless the DP is a Pilot Nav or RNAV departure procedure. The departure procedure is assigned by the clearance delivery controller or the controller handling clearances and need not be entered into the flight plan. If a pilot is unable to accept a preferred routing, ensure that the aircraft will at least leave the TRACON via the proper departure gate.
  - 2.2.4.1 For example, a pilot files a flight plan, departing KBOS for KORD and has filed the following route: **SEA.LAX.MIA.DEN** or perhaps even: **GPS DIRECT**
  - 2.2.4.2 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 gate and then “as filed.” In this case, MHT is the proper departure gate.
  - 2.2.4.3 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 Departure is offline) to accommodate the aircraft.
- 2.2.5 Often, pilots fail to file a departure procedure as part of their flight plan. Even when they do, departure procedure is ultimately assigned by the clearance delivery controller or the controller handling clearances, and the flight plan / strip may be amended as necessary.
- 2.2.6 The LOGAN Departure Procedure (Radar Vector) is the standard departure procedure in use at KBOS.
  - 2.2.6.1 Controllers do not need to add a departure procedure to the flight plan or flight strip if the LOGAN DP is being assigned.
  - 2.2.6.2 Controllers do not need to remove the LOGAN DP from a flight plan / strip if it is already there.
  - 2.2.6.3 Controllers should add the departure procedure to the flight plan/strip if a Pilot Nav or RNAV departure procedure is being utilized.



## 2.2.7 Departure Gates

- 2.2.7.1 To ensure proper and expeditious routing of traffic, Boston TRACON uses departure exit gates. Every IFR aircraft leaving KBOS must leave Boston TRACON (A90) airspace bound for one of these gates. (One exception to this rule is if a preferred routing specifies an alternate route.)
- 2.2.7.2 The following are departure gates used for IFR departures outside of A90:
  - 2.2.7.2.1 ACK [Nantucket VOR] – Aircraft with flight plans to the south, Bermuda, and Caribbean
  - 2.2.7.2.2 BOSOX [Intersection] (Used 16,000 and below) – Aircraft with flight plans to the west and southwest
  - 2.2.7.2.3 BURDY [Intersection] (Rarely used, only 10,000 and below) – Aircraft with flight plans to the southwest
  - 2.2.7.2.4 FRILL [Intersection] – Aircraft with flight plans to Atlantic Canada and Europe
  - 2.2.7.2.5 GLYDE [Intersection] – Aircraft with flight plans to the west and southwest
  - 2.2.7.2.6 LBSTA [Intersection] – Aircraft with flight plans to the northeast, Atlantic Canada, and Europe
  - 2.2.7.2.7 LUCOS [Intersection] – Aircraft with flight plans to the south
  - 2.2.7.2.8 MHT [Manchester VOR] – Aircraft with flight plans to the north and northwest
  - 2.2.7.2.9 MVY [Martha's Vineyard VOR] – Aircraft with flight plans to the Caribbean
  - 2.2.7.2.10 NELIE [Intersection] – Aircraft with flight plans to the west and southwest
  - 2.2.7.2.11 PSM [Pease VOR] (Used 10,000 and below) – Aircraft with flight plans to the northeast
- 2.2.7.3 There are numerous routings for low-altitude aircraft that are utilized. Most common are BOSOX, DRUNK and PSM.

- 2.2.8 The departure frequency issued to departing aircraft is dependent on which positions are currently staffed, and of those positions, who is handling departures.
- 2.2.8.1 Boston Departure (BOS\_DEP) is the “Initial Departure” position. This position handles all departing aircraft unless otherwise stated by the departure controller. If BOS\_DEP is online, aircraft shall be issued a departure frequency of 133.000.
- 2.2.8.2 If Boston Departure (BOS\_DEP) is not online, but Boston Approach (BOS\_APP) is online, consult the controller providing Tower services to determine which frequency should be issued to which aircraft.
- 2.2.8.3 If two or more Boston Approach sectors are online, but Boston Departure (BOS\_DEP) is not online, the departure frequency will depend on the runway the aircraft will depart, and/or the direction of flight. Consult the controller providing Tower services to determine which frequency should be issued to which aircraft.
- 2.2.9 A pilot must read back **at least** the assigned 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.
- 2.2.10 Controllers do not have to say “Callsign, I have your clearance, advise ready to copy” unless the aircraft was previously instructed: “Clearance on request, standby,” and the aircraft has been waiting for clearance for more than one minute.

### 2.3 *Clearing VFR Aircraft*

- 2.3.1 VFR aircraft shall be cleared out of the Boston Class Bravo Airspace via runway heading at (or below) 3,000 feet, or via an established VFR route.
- 2.3.2 VFR aircraft may or may not have an associated 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 plan/strip containing the following information, at a minimum: aircraft type, departure airport, destination airport (if applicable), direction of flight, and requested cruise altitude.
- 2.3.3 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
- 2.3.4 The departure frequency for VFR departures is almost always the same as the departure frequency for IFR departures.
- 2.3.5 If a VFR departure requests to remain below 2,000 feet MSL, the departure frequency will be the tower frequency (if online).
- 2.3.6 If Departure Control is very busy, the controller shall consider clearing a VFR aircraft to remain below 2,000 feet MSL to reduce further frequency congestion.
- 2.3.7 VFR aircraft shall be assigned squawk codes in a similar fashion as assigned to IFR aircraft. No VFR squawk code banks are used.

## 2.4 After the Clearance

2.4.1 The controller shall determine if the aircraft, when pushing back from the gate, will be entering a movement area.

2.4.1.1 For aircraft that will enter a movement area, after the aircraft has been given clearance, the pilot shall be instructed to contact Ground for pushback and startup.

*EXAMPLE: "Delta two eleven, contact Boston Ground when ready for pushback and startup with information Sierra."*

2.4.1.2 For aircraft that will not enter a movement area, after the aircraft has been given clearance, the pilot shall be instructed to contact Ground for taxi. Note: Clearing the aircraft for pushback and start is superfluous in this case; it is assumed. The controller does not need to issue a pushback and start clearance.

*EXAMPLE: "Delta two eleven, contact Boston Ground when ready to taxi with information Sierra."*

2.4.2 In rare instances, such as during major events, there may be Ramp Control online that will handle pushback and start coordination. In such cases, rules of engagement will be provided as part of the event briefing.

## 3.0 Ground Control

### 3.1 Introduction

- 3.1.1 Ground Control's job is to monitor and control general surveillance of the airport movement area, and also 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 TOWER to receive aircraft exiting active runways and to handoff departures for takeoff clearance.

### 3.2 Overview

- 3.2.1 A ground controller must become familiar with all available documents to ensure safe and efficient ground operations of aircraft moving in the movement area(s). These documents include:
  - 3.2.1.1 KBOS Airport Diagram Chart
  - 3.2.1.2 [Preferred Taxi Routes](#)
  - 3.2.1.3 Standard Operating Procedures
  - 3.2.1.4 Sector file
- 3.2.2 A ground controller must recognize the active runways, and quickly determine the most efficient way to taxi various aircraft to and from the active runway(s). Each ground controller shall refer to and use the [Preferred Taxi Routes](#) as long as practicable to ensure a safe and efficient taxi to and from the active runway. The ground controller must also coordinate with tower [or local] controller to determine where departing aircraft shall be handed off.

### 3.3 Taxiing Aircraft

- 3.3.1 After an IFR or VFR departure has been given clearance, and if the aircraft would push back into a movement area, the pilot will contact the ground controller for pushback and startup. The following is the proper phraseology for such clearance:

*EXAMPLE: "Delta two eleven, Pushback and startup approved. Advise this frequency ready to taxi with information Sierra."*
- 3.3.2 Pilots requesting taxi clearance should receive the ATIS information set by the tower controller. If a pilot does not advise on his initial contact that he has the specific ATIS, advise the pilot which ATIS code is current (if applicable). If the pilot still does not obtain this information, include the winds and/or altimeter setting in the taxi clearance. Aircraft shall be advised of the ceiling and visibility if the weather is below VFR minimums.
- 3.3.3 Turbojet aircraft shall not be taxied to Runway 4L for departure, due to noise abatement.

### 3.4 *Coordinating with Local*

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

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

3.4.1.2 VFR closed traffic requests

3.4.1.3 Other unusual requests

### 3.5 *Intersection Departures*

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

3.5.1.1 Intersection departures may be conducted at any time of the day; however, additional caution should be exercised at night.

3.5.1.2 The Local controller shall inform any traffic holding in position full length of any aircraft departing from an intersection of that runway.

3.5.1.3 Intersection departures may be conducted at any runway/taxiway intersection. Appendix 1 shows landing and departure distances.

### 3.6 *Ground Movements*

3.6.1 Sequence aircraft taxiing to active runway(s) to maximize operations and minimize wake turbulence delays. Consider fixes, speed and wake turbulence.

3.6.1.1 Fix example: If multiple similar aircraft are requesting taxi clearance at the same time, attempt to stagger departure gates/fixes to maximize separation for Local, Departure and/or Center

3.6.1.2 Speed example: If an SF40 (multiengine, turboprop) and a C402 (multiengine, piston prop) both request taxi clearance at the same time, and they are going to the same departure gate, instruct the C402 to taxi behind the SF40, as the SF40 will fly much faster, and will build separation for Local, Departure and/or Center.

3.6.1.3 Wake turbulence example: If a B772 (heavy turbojet) and B190 (small, multiengine prop) both request taxi clearance at the same time, instruct the B772 to taxi behind the B190 to the departure runway. Taxiing the B190 to the runway first will greatly minimize the delays that would be induced by taxiing and departing the B738 first.

## 4.0 Tower (Local) Control

### 4.1 Airspace

- 4.1.1 Boston Tower is authorized to provide service within the area: 2,000' MSL and below from the BOS VORTAC to BOS 8 DME. This area is contiguous with the Boston Class Bravo airspace.

### 4.2 Responsibilities

- 4.2.1 The Local controller is expected to have a thorough understanding of the instrument approach procedures at Boston Logan Airport.

#### 4.2.2 Takeoff Clearances

- 4.2.2.1 Workload permitting, the Local controller should include wind direction and velocity in takeoff clearances.
- 4.2.2.2 The Local controller shall hand off departing IFR aircraft to Departure control once airborne and a positive rate of climb is noted.

#### 4.2.3 Landing Clearances

- 4.2.3.1 Workload permitting, the Local controller should include wind direction and velocity in landing clearances.
- 4.2.3.2 Inform inbound aircraft of preceding traffic for the same, parallel, or intersecting runway(s).
- 4.2.3.3 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.

*EXAMPLE: "Shamrock one twenty-five heavy, 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."*

#### 4.2.4 Clearing the Runway

- 4.2.4.1 Issue runway exiting or taxi instructions once an aircraft has touched down and is slowed to a reasonable taxi speed.
- 4.2.4.2 Aircraft should not be instructed to contact ground control until clear of any active runways and on the terminal side of the transfer control point.
  - 4.2.4.2.1 The clearance must specifically state to cross the runway and then contact ground control:

*EXAMPLE: "Jet Blue four forty seven, turn left on Foxtrot, cross runway four left, then contact ground point niner on the other side."*

### 4.3 Releases

- 4.3.1 Blanket releases are authorized for all aircraft departing on the currently published configuration. Aircraft departing on the currently published configuration do not require a release from Departure.

*EXAMPLE: Currently published configuration is 4s/9. Wind is calm and traffic is light. EIN125 requests 15R for departure. Local must coordinate a release for EIN125; all other aircraft departing in accordance with the 4s/9 configuration do not require a separate release.*

- 4.3.2 All releases are immediately suspended in the event of an unanticipated missed approach. Local must coordinate with Departure to resume releases (blanket and individual).

### 4.4 Departure Headings

- 4.4.1 Departure headings for all non-jet aircraft cleared via the LOGAN departure procedure must be pre-coordinated with Departure unless that departure heading is within (+/-) 20 degrees of runway heading.
- 4.4.2 Departure headings for all aircraft cleared via a departure procedure, that differ from that departure procedure, must be pre-coordinated with Departure.

### 4.5 Line Up and Wait (LUAW)

- 4.5.1 The LUAW instruction may not be issued between sunset and sunrise to aircraft at an intersection except as noted in Section 6-(a)(3).
- 4.5.2 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 LUAW aircraft begins their takeoff roll (7110.65 3-9-4(c)).
- 4.5.3 Boston Tower has been granted a waiver to the guideline that prohibits the control tower from utilizing LUAW at an intersection between sunset and sunrise. This waiver will allow the tower to utilize LUAW during periods of darkness, at Runway 04R / 22L at Charlie. NOTE: When the provisions of this waiver are being exercised, the affected runways shall be used for departures only.

## 4.6 *Required Separation and Wake Turbulence*

- 4.6.1 Provide separation between aircraft as described in 7110.65 3-9-6, 3-9-7, 3-9-8, 3-10-3, 3-10-4.
  - 4.6.1.1 Runway 4L/22R and 4R/22L are separated by less than 2,500 feet; therefore, same runway separation rules (7110.65 3-9-6) apply.
- 4.6.2 Wake turbulence procedures shall be followed in accordance with 7110.65 2-1-19.
  - 4.6.2.1 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.
  - 4.6.2.2 Issue wake turbulence cautionary advisories to any aircraft if, in your opinion, wake turbulence may have an adverse effect on it. When traffic is known to be a heavy aircraft, include the word "heavy" in the description.

## 4.7 *Intersection Departures*

- 4.7.1 Intersections departures can be an effective tool to sequence departing aircraft. Commuter and propeller aircraft commonly use this operation.
  - 4.7.1.1 Intersection departures may be conducted at any time of the day; however, additional caution should be exercised at night.
  - 4.7.1.2 The Local controller shall inform any traffic holding in position full length of any aircraft departing from an intersection of that runway.
  - 4.7.1.3 Intersection departures may be conducted at any runway/taxiway intersection. Appendix 1 shows landing and departure distances.

### *EXAMPLE:*

*"Commutair four forty two, runway three three left at Golf, cleared for takeoff."*

*"Air France three three seven, runway three three left, line up and wait. Traffic will depart from an intersection downfield."*

*"Commutair four forty two, runway three three left at Golf, cleared for takeoff. Traffic will be holding in position full length."*

## 4.8 *Missed Approach Procedures*

- 4.8.1 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.
- 4.8.2 At KBOS, alternate missed approach instructions of maintain runway heading, climb and maintain 3000 are standard, not the published missed approach.
- 4.8.3 No departures may be released after an aircraft executes a missed approach until the Departure controller advises that departures may be released.
- 4.8.4 If both Departure and Approach control are online, the aircraft conducting the missed approach shall be handed off to Departure control.



#### 4.9 Land and Hold Short Operations (LAHSO)

- 4.9.1 Land and Hold Short Operations are used when surface wind and arrival volume dictate the simultaneous use of runway 22L & 27, 4L & 33R, and 15R & 9 for arriving and departing aircraft.
- 4.9.2 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.

*EXAMPLE: "Continental eight sixty-two, are you able to land runway 22L to hold short of runway 27? Six thousand four hundred feet remaining."*

Landing Runway	Hold-Short Point	Measured Distance
4L	15L/33R	5,250 feet
15R	9/27	6,800 feet
22L	9/27	6,400 feet
27	4R/22L	5,650 feet

- 4.9.3 If an aircraft is cleared to land and hold short of an intersecting runway, the pilot **must** read back the hold short instruction.
- 4.9.4 Proper phraseology must be used for LAHSO clearances to ensure effective and safe execution of the clearance.

*EXAMPLE: "Shamrock one twenty-five, wind two five zero at one three, runway two two left, cleared to land. **Hold short of runway 27.**"*

- 4.9.5 Inform aircraft landing full length of any aircraft inbound for an intersecting runway that will hold short of the runway intersection.

*EXAMPLE: "Delta eight thirty-two, wind two five zero at one three, runway two seven, cleared to land. **Traffic landing runway two two left will hold short of the intersection.**"*

#### 4.10 CAT II / III Operations

- 4.10.1 When weather conditions are below CAT I minimums, CAT II and/or III approaches may be conducted on Runway 4R regardless of surface wind. CAT II approaches may also be conducted on Runway 33L.
- 4.10.2 The Local controller shall include any RVR (Runway Visual Range) distance(s) in all landing clearances in accordance with 7110.65 2-8.

*EXAMPLE: "Continental eight eighty seven, wind zero three zero at one five, **Runway four right RVR three thousand five-hundred variable five thousand five-hundred.** Runway four right, cleared to land."*

## 4.11 VFR Aircraft Operations

4.11.1 The Local controller shall separate all VFR aircraft from other VFR and IFR aircraft. This shall be done using visual procedures, unless the Local controller is already radar certified.

4.11.2 Boston Tower is Limited Radar Approach Control (LRAC) certified which allows limited use of radar identification by radar certified controllers only (S3 and above). Boston Tower may radar identify **only** VFR aircraft and helicopters requesting to operate within the tower's portion of the Bravo airspace.

4.11.2.1 If a VFR flight plan has not already been filed, the Local controller shall create a VFR flight strip and enter at least the aircraft type and destination.

4.11.2.2 The Local controller shall assign the aircraft a squawk code and visibly observe the datablock "tag up."

4.11.2.3 Once the aircraft has been "tagged up" the Local controller shall verify altitude (except for departing aircraft), assume track, radar identify the aircraft on frequency.

### 4.11.3 VFR Departures

4.11.3.1 If a VFR departure will remain below 2,000 feet MSL, the Local controller shall assume track (if appropriate) and responsibility of the aircraft. When the aircraft reaches the tower airspace boundary, the Local controller shall drop track (as applicable) and terminate radar service of the aircraft, unless the pilot requests a handoff to Approach control for flight following.

4.11.3.2 If a VFR departure will climb above 2,000 feet MSL, hand off the aircraft to departure control prior to exiting Tower's airspace.

4.11.3.3 Departure instructions shall always be given to VFR aircraft by issuing a tower assigned heading or an exit in relation to the traffic pattern.

#### *EXAMPLE:*

*"Piper two two two six zulu, fly runway heading, wind calm, runway four left, cleared for takeoff."*

*"Cessna niner five zero five foxtrot, right downwind departure approved, wind two five zero at six, runway two seven, cleared for takeoff."*

#### 4.11.4 Aircraft requesting to remain in the pattern

- 4.11.4.1 The Local controller shall issue either left or right closed traffic in the takeoff clearance.

*EXAMPLE: Cessna five two eight six charlie, wind two four zero at seven, runway two two right, cleared for takeoff. Make right closed traffic.*

- 4.11.4.2 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.

- 4.11.4.3 The Local controller may issue various separation techniques including, but not limited to, the following maneuvers:

- 360 degree turn
- 270 degree turn
- Extended downwind
- S-turns on final approach (Use caution on 04L/R and 22L/R when both runways are active)
- Short approach

#### 4.11.5 Aircraft outside of Bravo airspace not handed off by approach control

- 4.11.5.1 When providing limited radar service, Boston Tower may radar identify **only** VFR aircraft and helicopters requesting to transit the Tower's portion of the Bravo airspace and/or to land.

- 4.11.5.1.1 If a VFR flight plan has not already been filed, the Local controller shall create a VFR flight strip and enter at least the aircraft type and destination.

- 4.11.5.1.2 The Local controller shall assign the aircraft a squawk code and visibly observe the datablock "tag up."

- 4.11.5.1.3 Once the aircraft has been "tagged up" the Local controller shall verify altitude, assume track, radar identify the aircraft on frequency.

*PHRASEOLOGY: Radar contact (miles, direction, reference, altitude). Cleared into the Boston Class Bravo airspace, maintain VFR at or below two thousand. Enter (pattern instructions), Boston altimeter (BOS altimeter setting).*

*EXAMPLE: "Cessna four seven zero uniform, radar contact one zero miles north of the Boston VORTAC at one thousand eight hundred. Cleared into the Boston Class Bravo airspace, maintain VFR at or below two-thousand. Enter left downwind runway four left, Boston altimeter two niner niner two."*

- 4.11.5.2 When not providing radar service, receive a position report, then issue a Class Bravo clearance and landing information only.

*EXAMPLE: "Cessna four seven zero uniform, cleared into the Boston class bravo airspace, maintain VFR at or below two-thousand. Enter left downwind runway four left, Boston altimeter two niner niner two."*

See the [KBOS Class B/VFR](#) page for additional information.

#### 4.12 Helicopter Operations and Designated Routes

4.12.1 Helicopter Operations shall be conducted in accordance with 7110.65 3-11.

4.12.2 Boston Tower may assign the following Boston area helicopter routes:

##### **Bay Route (BAAYE)**

###### **Waypoint – Name**

VPBAY - Black Rock  
Bay1 - Worlds End  
Bay2 - Long Island Bridge

##### **Fenway Route (FENWA)**

###### **Waypoint – Name**

VPFEN - Conrail/I95 & I93  
Fen1 - Forest Hills T Station  
Fen2 - Fenway Turnpike Interchange  
(Join Turnpike Route)  
Fen3 - Mass Ave Bridge  
Fen4 - Long Fellow Bridge  
Fen5 - Museum of Science  
VPCGS - Coast Guard Station

##### **Fresh Pond Route (FRESH)**

###### **Waypoint – Name**

VPFRE - Rte2/Watertown St  
VPSPF - Spy Fresh Split  
Fre1 - Fresh Pond  
Fre2 - Harvard Stadium  
Fre3 - Allston Toll Plaza  
Fre4 - B U Bridge  
Fre5 - Mass Ave Bridge  
Fre6 - Long Fellow Bridge  
Fre7 - Museum of Science  
VPCGS - Coast Guard Station

##### **Hampshire Route (HAMPS)**

###### **Waypoint – Name**

VPHAM - I93 and Rte 128 (I95)  
Interchange  
Ham1 - Mc Grath O'Brien  
VPCGS - Coast Guard Station

##### **Quarry Route (QUARE)**

###### **Waypoint – Name**

VPQUA - Blue Hills I93 & Rte 24  
Interchange  
VPQUB - Armory & Rte 3  
Qua1 - I93 & Rte 3  
Qua2 - MILLT (LOM)  
Qua3 - Mass Ave Interchange  
Qua4 - Fort Pt Channel

##### **Spy Pond Route (SPOND)**

###### **Waypoint – Name**

VPFRE - Rte 2/ Watertown St  
VPSPF - Spy Fresh Split  
Spy1 - Alewife T Station  
Spy2 - Alewife Brook  
Spy3 - Spy Pond/Rte 93 Interchange  
Spy4 - McGrath O'Brien  
VPCGS - Coast Guard Station

##### **Tobin Route (TOBIN)**

###### **Waypoint – Name**

VPTOB - I95 & Rte 1 Interchange  
Tob1 - Circle/Theater Complex  
Tob2 - Memorial Stadium  
Tob3 - Tobin Bridge

##### **Turnpike Route (PIKER)**

###### **Waypoint – Name**

VPPIK - Weston Tolls  
Pik1 - Allston Toll Plaza  
Pik2 - B U Bridge  
Pik3 - Mass Ave Bridge  
Pik4 - Long Fellow Bridge  
Pik5 - Museum of Science  
VPCGS - Coast Guard Station

#### **EXAMPLE:**

*"Boston Tower, Helicopter eight two zero papa tango."*

*"Helicopter eight two zero papa tango, Boston Tower. Squawk one five two six, say request."*

*"Squawk one five two six. Eight two zero papa tango is a Robinson R44 helicopter, over the I-93 / I-95 interchange at 1,000, request Hampshire Route, then a bravo clearance back northwesbound."*

*"Helicopter eight two zero papa tango, radar contact over the interchange, cleared into the Boston Class bravo airspace via the Hampshire route, maintain VFR at or below 1,500. Boston altimeter 30.06."*

## APPENDIX 1: LANDING AND TAKEOFF DISTANCES

TABLE 1: LANDING DISTANCES

Landing Runway	Distance	LAHSO Point	LAHSO Distance
4L	7861	15L/33R	5250
4R	8851		
9*	7000		
14*	5000		
15L	2557		
15R	9201	9/27	6800
22L	8806	9/27	6400
22R	7045		
27	7000	4R/22L	5650
32	5000		
33L	10083		
33R	2557		

\* Landings unauthorized (except emergency)

**TABLE 2: DEPARTURE DISTANCES FROM TAXIWAY INTERSECTIONS**

Departing Runway	Full Length Distance	Int	Distance	Int	Distance	Int	Distance	Int	Distance	Int	Distance
4L	7861	C	6000	F	5050						
4R	10005	B	9750	M1	8950	E	7300	C	6100	F	5100
9	7000	W	6400	E	4700						
14	5000	J1	3900								
15L*	2557										
15R	10083	Z	9100	N	7650	G	3550				
22L	10005	F	4850	C	3900	E	2700				
22R	7861	N2	7500	N1	6900	F	2750	C	1800		
27	7000	D2	6450	D1	6000	C	3850				
32*	5000										
33L	10083	D	7450	G	6500						
33R*	2557										

\* Departures unauthorized

**TABLE 3: DEPARTURE DISTANCES FROM RUNWAY INTERSECTIONS**

Departing Runway	Full Length Distance	Rwy	Distance	Rwy	Distance	Rwy	Distance
4L	7861	15R/33L	4050	15L/33R	2300		
4R	10005	9/27	7900	15R/33L	4650	15L/33R	3000
9	7000	4R/22L	5950	15R/33L	2550		
14	5000						
15L*	2557						
15R	10083	4L/22R	6700	4R/22L	5200	9/27	2100
22L	10005	15L/33R	6950	15R/33L	5350	9/27	2100
22R	7861	15L/33R	5550	15R/33L	3800		
27	7000	15R/33L	4450				
32*	5000						
33L	10083	9/27	8000	4R/22L	4850	4L/22R	3350
33R*	2557						

\* Departures unauthorized