

**Virtual Air Traffic Simulation  
Caribbean Division**

**VATCAR**

**TOWER STUDY GUIDE**

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***Note: This is not for real-world training***

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## **INTRODUCTION**

This Local Control Study Guide is designed to provide you with the basic information necessary to work the Local Control (TWR) position. It builds and expands on the information you have already learned in the Basic and Ground Control Study Guide. In real-life Tower controllers control aircraft based primarily on what they see out the windows. All separation standards depend on seeing the aircraft and other visible landmarks. Tower radar displays are only an aid. In ASRC it's a bit different. You can't see out the windows so your radar display, supplemented by pilot reports, becomes your primary tool. Therefore some accommodations have to be made. These will be discussed as the need arises.

Tower Control basically is responsible for:

- All departure aircraft control from reporting ready for takeoff until handing off to Departure Control.
- All arriving aircraft control from handoff by Approach Control until aircraft is clear of the active runway

## **CHAPTER 1 - RUNWAY SELECTION**

1-1. Normally, Tower selects the runway in use. However, at some locations due to the close proximity of other airports or other factors, Approach Control will select the runway in use. You should remain flexible and consider the impact on other controllers when selecting and coordinating a runway in use.

1-2. When the wind is 5 knots or more you should use the runway most nearly aligned with the wind.

1-2-1. When the wind is less than 5 knots use the "calm wind" runway if one is designated..

1-2-2. It should be noted that the "calm wind runway" does not mean that the winds are calm. As stated in the Basic Study Guide, when the winds are less than three knots, it is considered "calm." Therefore, "Calm Winds" and "Calm Wind Runway" are two separate terms.

1-2-3. Sometimes operational factors will make another runway less aligned with the wind more suitable. Reasons for selecting a different runway could be the availability of instrument approaches, length, noise abatement, or other locally unique reason.

1-3. You may use a runway other than the runway in use if it will be operationally advantageous or is requested by the pilot. Some examples would be: Assigning large aircraft to the runway in use and smaller aircraft to another runway, or a

pilot requesting a straight-in approach to a different runway instead of flying a complete pattern to the runway in use, or requesting a runway that is closer to his parking area.

1-3-1. State the runway in use when using another runway.

Example: "RUNWAY 36 IN USE, RUNWAY 28L CLEARED TO LAND."

## **CHAPTER 2 - COORDINATION**

2-1. In addition to the general coordination concepts you learned in the Basic Study Guide, and built upon in the Ground Control Study Guide, Local Control has its own unique coordination requirements.

2-2. When you authorize Ground Control to cross an active runway, you should use the word "CROSS" and the runway number, e.g. "CROSS RUNWAY 36." In real-life, each individual crossing must be coordinated. In ASRC, to reduce the amount of coordination, blanket approval is sometimes given to GND to cross active runways when he sees it is safe to do so. You should inform GND of the type of crossing coordination you wish to use.

2-2-1. Before you use any runway not previously designated as active you must coordinate with GND to make sure he doesn't have any aircraft taxiing on it.

2-3. You should coordinate with Approach Control to determine what type(s) of instrument approach arrivals will be making, handoff points, unplanned missed approach instructions, Class B or C Airspace procedures, and any other locally unique requirements.

2-4. You should coordinate with the controller doing the departure function (DEP, APP, or CTR) to determine the initial vector or routing for departures, IFR release procedures (individual or automatic), and initial separation for successive departures.

## **CHAPTER 3 - INITIAL CONTACT AND POSITION DETERMINATION**

3-1. When working Local Control, as when working Ground, you should provide airport traffic control service on the basis of known or observed conditions. This is more difficult in ASRC than in real-life. You cannot simply look out the window. You must rely on your radar display, pilot reports, and your own common sense.

3-2. Before you begin controlling an aircraft, you must know where it is. Again, just as in Ground Control, issuing control instructions without being sure of an aircraft's position could easily create a conflict. While aircraft positions on radar are generally accurate enough, pilots may be unsure of their exact location. Use caution when relying on aircraft position reports alone.

3-3. Pilots are required to establish communications before entering a Class C or D airspace. If you respond to a radio call with "(CALLSIGN) STANDBY" communications "have been" established and the pilot may enter the airspace. If you want the aircraft to remain outside the CLASS C or D airspace, you must say so, e.g. "(CALLSIGN) REMAIN OUTSIDE DELTA AIRSPACE AND STANDBY."

## **CHAPTER 4 - ADVISORIES AND TRAFFIC INFORMATION**

4-1. Issue information about the airport necessary for an aircraft's safe operation in time for it to be useful to the pilot. While not likely to be encountered in ASRC/SB, this would include information on construction, less than normal braking action, or other pertinent airport conditions.

4-2. When describing any observed abnormal aircraft condition, always use the term "APPEARS", e.g. "IT APPEARS YOU HAVE LANDED ON THE WRONG RUNWAY." This is especially useful in ASRC/SB because what the pilot sees on his computer may not exactly match what you see on yours.

4-3. All vehicles, equipment, and personnel must be off the runway before a departing aircraft starts takeoff roll or a landing aircraft crosses the landing threshold. The only positive way to ensure this is by requiring these vehicles, etc to maintain radio contact with the control tower at all times. They may only enter the runway with permission from the tower and must exit and report off when instructed..

4-3-1. When vehicles, equipment, or personnel are on the runway, aircraft may still make low approaches to that runway if they are restricted to at least 500 feet above the airport elevation, e.g. airport elevation 300' MSL, "CLEARED FOR LOW APPROACH AT OR ABOVE 800', VEHICLE ON THE RUNWAY."

4-3-2. Vehicles, equipment, and personnel in direct communications with the control tower may be authorized to operate up to the edge of the runway, but not actually on it, if you issue an advisory to the aircraft, e.g. "MEN AND EQUIPMENT RIGHT SIDE OF RUNWAY."

4-4. Advise other aircraft of the runway braking action when reports are received from pilots. While reduced braking action is not currently modeled in Flight Simulator, you should know how to handle any reports you may receive from pilots, or observe in the REMARKS section of a METAR.

4-4-1. Describe the quality of braking action using the terms "GOOD", "FAIR", "POOR" or "NIL" and include type of aircraft:

Example: "BRAKING ACTION POOR, REPORTED BY A 727." If the pilot report uses different words, ask him to restate braking action in these terms.

4-5. A wet runway surface or USAF Runway Condition Reading (RCR) may sometimes be shown in the REMARKS section of the METAR as "//WR" or "RCR05P." If available provide it to all USAF aircraft and other aircraft upon pilot request, "WET RUNWAY" or "RCR ZERO FIVE, PATCHY."

4-6. Describe traffic in an easy to understand manner, such as "TO YOUR RIGHT" or "AHEAD OF YOU", e.g. "TRAFFIC, MD-80 ON DOWNWIND TO YOUR LEFT." Avoid using cardinal directions (north, south, etc) or referring to landmarks such as "past the fire station" or similar objects the pilot may not be familiar with or may not be included in his scenery.

4-6-1. You may also issue traffic in the standard radar traffic advisory format. This consists of:

- 12-hour clock position or cardinal direction (N, S, E, W).
- Distance in miles.
- Direction of movement.
- Type and altitude if known.

Examples:

"TRAFFIC, 11 O'CLOCK, 10 MILES, SOUTHBOUND, DC-8, 17,000."

"TRAFFIC, 12 O'CLOCK, 15 MILES, OPPOSITE DIRECTION, ALTITUDE UNKNOWN."

4-6-2. When the traffic is no longer a factor or depicted on radar inform the pilot. "TRAFFIC NO FACTOR/NO LONGER OBSERVED."

## **CHAPTER 5 - AIRSPACE RESTRICTIONS**

5-1. If an aircraft requests to takeoff, land, or touch-and-go on a closed or unsafe runway, inform the pilot the runway is closed or unsafe, and inform him that a clearance cannot be issued.

5-1-1. If the pilot persists in his request and traffic is not a factor, inform him that the operation will be at his own risk, e.g. "RUNWAY 36 CLOSED. UNABLE TO ISSUE CLEARANCE. DEPARTURE/LANDING/TOUCH-AND-GO WILL BE AT YOUR OWN RISK."

5-2. Do not approve a speed in excess of 200 knots within Class C or D airspace unless the pilot informs you the higher speed is required by the aircraft flight manual or military procedures.

5-3. Do not approve unusual maneuvers such as "buzz the field" where a flight is conducted at a low altitude, or high speed, for thrill purposes within Class B, C, or

D airspace if they are not essential to the performance of the flight unless covered in a local Standard Operating Procedure or Letter of Agreement.

5-4. For the purpose of airborne observation, helicopters are restricted from hovering over active runways or aircraft movement areas.

5-4-1. Hovering altitudes should be restricted to at, or below 1,000 AGL.

## **CHAPTER 6 - WAKE TURBULENCE**

6-1. Wake turbulence is generated by the passage of an aircraft through the atmosphere. Generally speaking the heavier the aircraft the more wake turbulence. The term also includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.

6-2. Wake turbulence may be encountered by aircraft on the ground as well as in flight. Because wake turbulence is unpredictable, controllers are not responsible for anticipating its existence or effects. Wake turbulence isn't modeled by FS so pilots won't experience its effects but as a controller you are still required to provide the appropriate wake turbulence separation.

6-3. For the purposes of Wake Turbulence Separation, aircraft are classified as Heavy, Large, or Small.

6-3-1. Heavy aircraft are capable of takeoff weights of 255,000 pounds or more whether or not they are operating at this weight during a particular phase of flight. Some examples are most 707/C-135, all 747, 767, DC-10, L-1011, A-300, C-5, C-141, C-17, and B-52.

6-3-2. Large aircraft are aircraft of more than 41,000 pounds but less than 255,000 pounds maximum takeoff weight. Most military, Air Carrier, and other non-General Aviation aircraft are Large.

6-3-3. Small aircraft are aircraft of 41,000 pounds or less maximum takeoff weight. Most General Aviation aircraft are Small and most weigh 12,500 lb or less.

6-4. Apply wake turbulence procedures to aircraft operating behind Heavy jets and, where indicated, to Small aircraft behind Large aircraft. Specific separations are listed in the appropriate chapters.

6-4-1. Separation shall continue to touchdown for all IFR aircraft not making a visual approach or maintaining visual separation.

6-5. Issue wake turbulence cautionary advisories, e.g. "CAUTION WAKE TURBULENCE" to:

- VFR aircraft behind a Heavy or B757.
- IFR aircraft that accept a visual approach or visual separation behind a Heavy or B757.
- Any aircraft if in your opinion wake turbulence may have an adverse effect on it.

## **CHAPTER 7 - AIRPORT TRAFFIC PATTERNS**

7-1. Control of the VFR traffic patterns and runways is the primary duty of the Local Controller.

7-1-1. The components of a normal rectangular traffic pattern are:

- Upwind - parallel to the runway, in the direction of landing.
- Crosswind - at right angles to the departure end of the runway.
- Downwind - parallel to the runway between crosswind and base, opposite to the landing direction.
- Base - at right angles to the approach end of the runway from downwind to the extended runway centerline.
- Final - along the extended runway centerline from the base leg to the runway in the direction of landing. An aircraft making a straight-in is considered to be on final.

7-1-2. You can require aircraft to adjust their traffic pattern to achieve the required spacing. Example:

- "EXTEND DOWNWIND"
- "MAKE SHORT APPROACH"
- "MAKE A 360 ON DOWNWIND"
- "MAKE A 270 TO BASE"
- "BREAK DEPARTURE END" .

7-1-3. The normal VFR rectangular pattern altitudes in ASRC/SB are 1000 AGL for fixed-wing aircraft and 500 AGL for helicopters. Overhead pattern altitude is normally 1500 AGL.

7-1-4. Left turns (traffic) are standard. Aircraft may be instructed to make right turns or right traffic may be published for the specific pattern.

7-2. Another type of traffic pattern is the Overhead Pattern. It is used primarily by military fighter-type aircraft.

7-2-1. The overhead pattern consists of an Initial leg in the direction of landing along the extended runway centerline, a 180 degree turn ("break") over the

approach end (the "numbers"), a second 180 degree turn at base, and a final approach. Speeds on the initial leg vary but are normally around 300 knots.

7-2-2. Be careful when instructing aircraft in the Overhead Pattern to break at any place other than the numbers. You may create a conflict with departing or missed approach aircraft.

7-2-3. IFR aircraft entering the Overhead Pattern are considered VFR when the aircraft reaches Initial.

7-3. As the Local Controller, you must establish a sequence of arriving and departing aircraft. There are several methods you may use to do this.

7-3-1. You can instruct them to enter the traffic pattern at a specific point.

Example:

- "ENTER DOWNWIND"
- "ENTER BASE"
- "MAKE STRAIGHT-IN"
- "ENTER INITIAL"

7-3-2. You can tell them to follow another aircraft already in the pattern.

Example:

- "NUMBER 2 FOLLOW 727 ON BASE"
- "NUMBER 4 FOLLOW C-172 ON DOWNWIND."

7-4. If the traffic is using a different runway do not use the term "FOLLOW" but state the runway the other aircraft is using, e.g. "TRAFFIC IS A LEAR 45 ON BASE LANDING RUNWAY 36."

7-5. Consider an aircraft making a touch-and-go, stop-and-go, or low approach as an arrival until it touches down ( Touch and Go ), makes a complete stop ( Stop and Go ), or crosses the landing threshold ( Low Approach). Then consider it a departure.

7-5-1. Clearance for touch-and-go, stop-and-go, low approach, or the option are considered landing clearances when discussing separation in this study guide.

7-6. The term "CLEARED FOR THE OPTION" is used to allow the pilot to make his choice between a full-stop, touch-and-go, stop-and-go, or low approach. If necessary to restrict one of these options, e.g. a stop-and-go, use the phraseology "UNABLE STOP-AND-GO, OTHER OPTIONS APPROVED."

7-7. You may conduct simultaneous operations on parallel runways or helicopter landing and takeoff areas.

7-7-1. These operations must be conducted in VFR conditions, communications must be maintained, traffic information must be issued, and the distance between centerlines must be at least:

- 700 feet for same direction fixed-wing operations
- 1400 feet day/2800 feet night for opposite direction fixed-wing operations.
- 200 feet for helicopter operations or the helicopters must be instructed to remain 200 feet apart.

## **CHAPTER 8 - DEPARTURE PROCEDURES**

8-1. When the aircraft calls ready and traffic permits, issue takeoff clearance. When more than one runway is active, first state the runway number followed by the takeoff clearance, e.g. "RUNWAY 27L, CLEARED FOR TAKEOFF."

8-2. You may taxi aircraft into position and hold when takeoff clearance cannot be issued because of traffic.

Example: "RUNWAY 36, TAXI INTO POSITION AND HOLD."

8-2-1. The most common use for this is when waiting for a preceding arrival to exit the runway or while waiting for successive departure separation. It should not be used routinely with every departure. Whenever possible, aircraft should be issued takeoff clearance when still holding short of the runway.

8-2-2. "Taxi into position and hold" does not allow you to conduct operations (low approach, touch-and-go, etc) by landing one aircraft over another aircraft holding in position.

8-2-3. When you taxi an aircraft into position, inform it of the closest traffic on approach to the same runway.

Example "RUNWAY 18, TAXI INTO POSITION AND HOLD. TRAFFIC A 737 SIX MILE FINAL."

8-2-4. Do not use conditional phrases such as "BEHIND LANDING TRAFFIC" or "AFTER THE DEPARTING AIRCRAFT" when taxiing aircraft into position. Wait until the other aircraft is no longer a conflict before issuing instructions to taxi into position.

8-2-5. Do not taxi aircraft into position at an intersection at night. You should be flexible when applying this rule in ASRC/SB. The reason behind it is the visual problems encountered by real-life controllers when looking out the windows at

night. This isn't yet a problem in ASRC/SB plus many pilots operate on a "simulator time" which may be different from the actual time. Your "night" may be his "day."

8-3. Handoff all departing IFR aircraft to the controller performing the departure control function (DEP, APP, or CTR) when further communication with you is not required. You may start the handoff when the aircraft is still on the runway. Normally you should complete it when the aircraft is approximately ½ NM off the departure end.

8-4. VFR departures in Class B and C Airspace and Special VFR departures are handled the same as IFR departures.

8-5. VFR departures in Class D airspace can be handled in two ways:

- Instruct the aircraft to depart in a cardinal direction (N, S, E, W), e.g. "NORTHEAST DEPARTURE APPROVED."
- Instruct the aircraft to depart via a leg of the traffic pattern, e.g. "MAKE RIGHT DOWNWIND DEPARTURE."

8-6. Do not request departing military aircraft to make radio frequency or transponder changes before the aircraft reaches 2500' AGL.

8-7. When a helicopter requests to depart from any point on the movement area issue takeoff clearance "CLEARED FOR TAKEOFF."

8-7-1. When a helicopter requests to depart from a non-movement area, use the term "PROCEED AS REQUESTED."

8-7-2. When a helicopter requests to depart from an area not authorized for helicopter use, or an area off the airport, use the term "DEPARTURE WILL BE AT YOUR OWN RISK."

8-7-3. Unless requested by the helicopter pilot, do not issue downwind takeoffs if the tailwind exceeds 5 knots.

8-8. Cancel takeoff clearance if circumstances require. Example: "CANCEL TAKEOFF CLEARANCE." Once an aircraft has started takeoff roll, cancel takeoff clearance only for safety reasons.

## **CHAPTER 9 - DEPARTURE AND DEPARTURE/ARRIVAL SEPARATION**

9-1. Separation of IFR departures in the air is the responsibility of the controller performing the departure function (DEP, APP, or CTR). Tower must obtain a release from the DEP controller for each departure or provide the separation specified by the departure controller in addition to applying runway separation.

Many ARTCCs have SOPs or LOAs which cover departure releases and separations. If there is no SOP or LOA or the departure controller doesn't specify any required separation, you should ensure at least 5NM between successive IFR departures.

9-2. Runway separation in real-life is based on looking out the windows at the aircraft in relation to other landmarks such as taxiways or the runway ends. Since this is not practical in ASRC work-arounds must be used. Watch the aircraft's altitude readout compared to the field elevation to determine when an aircraft has landed or is airborne. Compare aircraft positions to each other and the runways on the radar map to determine when an aircraft is at the appropriate points.

9-3. Separate a departure from a preceding departure on the same runway by ensuring it does not begin takeoff roll until the first aircraft is airborne and past the runway end or turned to avert any conflict.

9-3-1. Use 2 minutes separation when any aircraft departs from the same or parallel runways separated by less than 2500 feet behind a Heavy or B757. This separation may not be waived by the pilot.

9-3-2. Use 3 minutes separation when any aircraft departs from an intersection behind a heavy jet or B757 or if it departs in the opposite direction from the Heavy or B757 on the same runway. This separation may not be waived by the pilot.

9-3-3. Use 3 minutes separation when a Small aircraft departs from an intersection behind a Large aircraft. This separation is not required if the pilot has specifically requested to waive the separation. A simple request for takeoff is not a request for a waiver. Issue a wake turbulence cautionary advisory before clearing the Small aircraft for takeoff.

9-3-4. Aircraft conducting multiple touch-and-go or stop-and-go operations in the VFR pattern are considered to be departing from an intersection. However, 3 minutes separation is not required unless ATC takes action to reduce the visual separation being applied by the pilot. For example, if you simply instruct the touch-and-go aircraft to "FOLLOW" the Heavy the 3 minutes are not required but if you tell it to "MAKE SHORT APPROACH" or "TURN BASE NOW" the 3 minutes are required.

9-3-5. Do not taxi Small aircraft into position and hold behind a departing Heavy or B757.

9-3-6. Separate a departure from a preceding arrival on the same runway by ensuring it does not begin takeoff roll until the arriving aircraft is off of the runway.

9-4. Separate a departure from a preceding departure on an intersecting runway by ensuring it does not begin takeoff roll until the first departure has passed the runway intersection or is turning to avert any conflict.

9-4-1. Use 2 minutes when any aircraft departs behind a departing Heavy or B757 on an intersecting runway or parallel runways separated by more than 2500 feet if the projected flight paths will cross.

9-4-2. Separate a departure from a preceding arrival on an intersecting runway by ensuring it does not begin takeoff roll until the arrival has passed the runway intersection or has completed landing roll and will hold short of the runway intersection.

9-4-3. Use 2 minutes when any aircraft departs after a Heavy or B757 lands if the departure will fly through the airborne path of the arrival.

9-5. When the second aircraft is a helicopter you may instruct it to "MAINTAIN VISUAL SEPARATION" instead of applying runway separation.

9-5-1. When both aircraft are helicopters ensure the second helicopter does not depart until the first helicopter has left the take off area or taxied off the landing area.

9-6. Takeoff clearance need not be withheld until the required separation exists if you are sure it will exist when the aircraft starts takeoff roll. For example, the first departure is airborne but has not crossed the runway end and the second departure has called ready. The first departure will almost certainly cross the runway end before the second departure actually starts rolling so you may issue takeoff clearance to the second departure without waiting. This is called "anticipating separation."

## **CHAPTER 10 - ARRIVAL PROCEDURES AND TRAFFIC PATTERNS**

10-1. IFR Arrivals will be separated, sequenced, and cleared for approach by Approach Control. Tower need only issue landing clearance.

10-2. VFR arrivals in Class B and C Airspace are handled the same as IFR arrivals.

10-3. You must issue current landing information to VFR arrivals not handed off to you by APP. Landing information consists of:

- Traffic pattern information. You need not issue this if the aircraft is to enter left traffic. Aircraft entering the Overhead Pattern should be instructed to "REPORT INITIAL."
- Runway in use.
- Wind.
- Altimeter setting.
- Ceiling and visibility if below VFR.
- Low level windshear advisories when available.

- Braking action reports when available and the braking action is reported as "POOR" or "NIL."
- Instructions to make additional position reports if necessary. Use either prominent geographical features known to be in the default FS scenery or legs of the traffic pattern.

Example: "REPORT OVER THE SEARS TOWER" or "REPORT DOWNWIND" or "REPORT BASE."

10-4. Landing information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code.

10-5. Issue landing clearance. Restate the landing runway whenever there is a possibility of confusion, e.g. "RUNWAY 36R, CLEARED TO LAND." This includes issuing clearance for touch-and-go, stop-and-go, low approach or the option as appropriate.

10-5-1. Inform the aircraft that is cleared to land when there is traffic holding on the same runway.

Example: "RUNWAY ONE EIGHT, CLEARED TO LAND. TRAFFIC HOLDING IN POSITION."

This does not imply the aircraft may land over the top of the holding aircraft, only that there is an aircraft currently holding in position. The aircraft in position will depart or taxi off the runway before the arrival lands.

10-5-2. A landing clearance means that appropriate separation on the landing runway will be ensured. It does not relieve the pilot from compliance with any previously issued restriction or instruction.

10-6. Do not withhold a landing clearance indefinitely even though it appears a regulation has been broken. The violation may be the result of an emergency situation; assist the pilot to the extent possible.

10-7. Runway exiting instructions should not be issued to an aircraft prior to touchdown and are seldom needed in ASRC/SB at all. However, if you feel it is necessary instruct aircraft where to turn-off and advise the aircraft to hold short of another runway if required for traffic, e.g. "TURN LEFT NEXT TAXIWAY HOLD SHORT OF RUNWAY 27L."

10-7-1. Aircraft are expected to taxi off the runway unless otherwise directed by ATC. This does not authorize the aircraft to cross a subsequent runway after leaving the landing runway.

10-7-2. The pilot is responsible for determining when his aircraft is off of the runway.

10-7-3. If the pilot does not read back the hold short instructions or any other time you feel it necessary ask him to do so. Example: "READBACK HOLD INSTRUCTION."

10-8. Approve or disapprove pilot requests to remain in the traffic pattern (closed traffic) for successive operations based on traffic, "CLOSED TRAFFIC APPROVED." You should have a good idea where it will fit into the sequence of arrivals and departures before you allow an aircraft to remain in closed traffic. If necessary, tell the aircraft "UNABLE CLOSED TRAFFIC" and issue alternate instructions. Example: "BREAK OUT AND RE-ENTER DOWNWIND" or "HOLD 5 NM SOUTH OF THE AIRPORT."

10-9. When a helicopter requests to land at any point on the movement area, issue landing clearance "CLEARED TO LAND."

10-9-1. When a helicopter requests to land on a non-movement area, use the term "PROCEED AS REQUESTED."

10-9-2. When a helicopter requests to land on an area not authorized for helicopter use, or an area off the airport, use the term "LANDING WILL BE AT YOUR OWN RISK."

10-9-3. Unless requested by the helicopter pilot, do not issue downwind landings if the tailwind exceeds 5 knots.

10-10. To instruct a pilot to abandon his approach, use the term "GO AROUND." The most common reason is another aircraft still on the runway. Less common are unauthorized vehicles or personnel on the runway. You should not normally issue go around instructions for approaches that look "unsafe." The pilot is usually in the best position to determine if he is able to make a safe landing.

10-10-1. Unless you issue other instructions, a VFR aircraft will overfly the runway while climbing to traffic pattern altitude and an IFR aircraft will execute the published "Missed Approach".

10-10-2. Handoff any IFR aircraft executing a go around or missed approach back to approach control unless the aircraft requests to remain in the VFR traffic pattern or cancels IFR. VFR aircraft will normally remain in closed traffic for another pattern.

## **CHAPTER 11 - ARRIVAL AND ARRIVAL/DEPARTURE SEPARATION**

11-1. Separation of IFR arrivals on the same final approach course is the responsibility of the Approach Control. Tower applies runway separation.

11-1-1. Separate an arrival from a preceding arrival on the same runway by ensuring it does not cross the landing threshold until the first aircraft has landed and taxied off the runway.

11-1-2. Separate an arrival from a preceding departure on the same runway by ensuring it does not cross the landing threshold until the first aircraft is airborne and past the runway end.

11-1-3. Separate an arrival from a preceding arrival on an intersecting runway by ensuring it does not cross the landing threshold until the arrival has passed the runway intersection or has completed landing roll and will hold short of the runway intersection.

11-1-4. Separate an arrival from a preceding departure on an intersecting runway by ensuring it does not cross the landing threshold until the departure has passed the runway intersection or is turning to avert any conflict.

11-2. Use 2 minutes separation when any aircraft will land behind a Heavy or B-757 departing on a crossing runway if the arrival and departure airborne paths will cross.

11-3. Simultaneous takeoffs and landings or simultaneous landings on intersecting runways involving Land And Hold Short Operations (LAHSO) require approval from the ARTCC Chief. He must make available to pilots and controllers the conditions under which these operations may be conducted and the procedures to be used.

11-4. When the second aircraft is a helicopter you may instruct it to "MAINTAIN VISUAL SEPARATION" instead of applying runway separation.

11-5. When both aircraft are helicopters ensure the second helicopter does not land until the first helicopter has taxied off the landing area or left the take off area.

11-6. Issue wake turbulence cautionary advisories to any aircraft landing behind a Heavy or B757:

11-6-1. On the same or parallel runways separated by less than 2,500 feet, e.g. "RUNWAY 27L CLEARED TO LAND, CAUTION WAKE TURBULENCE, HEAVY 747 DEPARTING RUNWAY 27R."

11-6-2. On crossing runways if the arrival's flight path will cross behind the departure's path and rotation point, e.g. "RUNWAY 36 CLEARED TO LAND, CAUTION WAKE TURBULENCE, 757 DEPARTING RUNWAY 27."

11-7. Landing clearance need not be withheld until the required separation exists if you are sure it will exist when the second aircraft crosses the landing threshold. For example, the first arrival is landing roll and the second arrival is 5

mile final. The first arrival is virtually certain to be off the runway before the second arrival flies those 5 miles. Therefore, you may issue landing clearance to the second aircraft even though the required separation doesn't currently exist. This is called "anticipating separation." Issue traffic information to the second aircraft. Example: "RUNWAY 36 CLEARED TO LAND. TRAFFIC IS A LEAR 45 OVER THE APPROACH LIGHTS."