

Brown Field Midair Collision  
San Diego, CA  
August 16, 2015  
WPR15MA243AB

**NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.**

ATTACHMENT 1

Controller Training Excerpts

(6 pages)

Excerpts from “Runway Separation Minima” training, provided July 2015:

## Module 2 – Basic Local Control Phraseology

Exiting the Runway

Important points about exiting runways:

- In general, avoid transmissions to pilots immediately before or after touchdown when flight crews are busy
- Local control shall issue taxi instructions when:
  - > An aircraft must comply with ATC instructions before it can change to ground control
  - > An aircraft must use a taxiway, runway, or ramp different from the one normally used




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QUIT OPTIONS GO TO BACK REPEAT NEXT

## Module 3 – Good operating practices

Benefits of Scanning




Effective scanning offers these benefits:

- Better situation awareness
- Helps you organize and expedite the flow of traffic
- Assists in anticipation and earlier identification of problems
- Helps you manage your workload and prevent runway incursions

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## Elements of a Scan



**Visual Elements**

- Aircraft receiving the control instructions
- Runway environment and movement areas
- CTRD/ASDE
- Memory aids, devices, and techniques

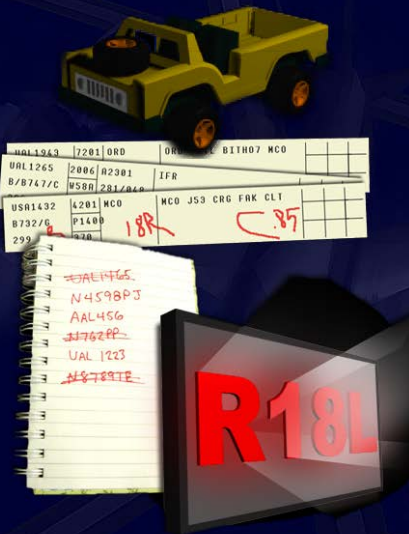
**Auditory Elements**

- Ensuring correct read-backs
- Correlating what you hear with what you see
- Remaining aware of tower environment by listening to what is going on around you
- Paying attention to verbal cues in others' voices

Section 2: Scanning  
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QUIT ? GO TO BACK REPEAT NEXT

## Memory Aids, Devices, Techniques



- Memory aids, devices, and techniques help you remember special, typically short-term, situations
- Can include strip board management, strip marking, notepad management, specially coded warning strips, personal and facility checklists, the status information area, position reports, locally mandated procedures, and more
- Use them consistently to reflect the status of your landing and departing aircraft
- See usage guidance in your facility's training program


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## Module 5 – Multiple Runway Separation

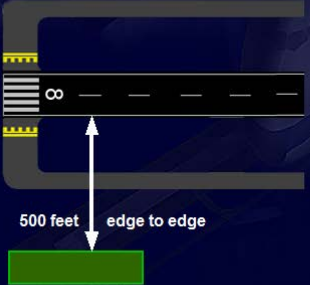
**Simultaneous Same Direction Operations**

**Facility A**



800 feet centerline to centerline

**Facility B**



500 feet edge to edge

Requirements for simultaneous same direction operations:

- Minimum required distance between runways or landing strips
- VFR conditions unless visual separation is applied
- Two-way radio communication with the aircraft involved, during which pertinent traffic should be issued



**Same Direction Distance Minima**

Aircraft Category	Minimum distance (feet) between parallel	
	Runway centerlines	Edges of adjacent strips or runway & strip
Lightweight, single-engine, propeller driven	300	200
Twin-engine, propeller driven	500	400
All others	700	600

Section 2: Parallel Runways Page 3 of 14

## Module 8 – Helicopter Separation

**Successive Takeoffs / Landings**

For departures following departures or arrivals, ensure that:

Preceding departures have left the takeoff area.

Any preceding arrivals have taxied off the landing area.

For arrivals following departures or arrivals, ensure that:

Preceding arriving helicopters have stopped or taxied off the landing area.

Any preceding departing helicopters have left the landing area.

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Excerpt from “Situational Awareness” training, provided October 2014:

Tower Elements	Surface Elements	Other Elements
<ol style="list-style-type: none"> <li>Review flight progress strips. Look for markings to indicate intersection, opposite direction, or other non-standard departures.</li> <li>Ensure flight progress strip markings and information are accurate.</li> <li>Check weather conditions and instruments.</li> <li>Monitor D-BRITE.</li> <li>Check Delay/Release information.</li> <li>Monitor Status Information Area (SIA) board.</li> <li>Check Runway Incursion Devices (RID's) or other memory tools for runway or taxiway closures, equipment outages, etc.</li> <li><b>Assure correct readback.</b></li> </ol>	<ol style="list-style-type: none"> <li>Check runway or taxiway.</li> <li>Check the progress of aircraft and vehicle ground movement.</li> <li>Identify potential problem areas and monitor them closely (hot spots).</li> <li><b>Observe aircraft on final approach.</b></li> <li>Check the departure corridor.</li> <li>Check intersections.</li> <li>Look for blocked taxiways or ramps.</li> <li>Watch ILS critical areas.</li> <li>Issue Taxi Clearance, including specific route to follow.</li> </ol>	<ol style="list-style-type: none"> <li>Visually acquire the aircraft or vehicle. Confirm location prior to issuing clearance.</li> <li><b>Verify that the pilot or vehicle operator is following instructions. Pay particular attention to pilots or vehicle operators needing additional attention.</b></li> <li>Check for unauthorized movement.</li> <li>Watch for congestion or conflicts.</li> <li>If necessary, physically move to improve your view around obstructions (poles, D-BRITE, etc.).</li> <li>Correlate readback with aircraft position or movement.</li> </ol>

Click any button below to see a reenactment. To replay the reenactment, click the reenactment button again.

1  
2  
3  
4  
5  
6  
7

Experts' choices are highlighted. Compare their answers to yours to get a better idea of which critical scan elements were overlooked.

You must view at least 4 reenactments before continuing to the next page in this lesson.

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QUIT OPTIONS GO TO BACK REPEAT TEST

Excerpts from “Visual Separation” training, provided July 2015:

## What is Visual Separation?

### VISUAL SEPARATION

A means employed by ATC to separate IFR/VFR aircraft in terminal areas and en route to expedite traffic and make better use of the airspace.

In the Tower environment, there are two ways to effect this separation:

- One pilot sees the other aircraft involved and upon instructions from the controller, provides his/her own separation by maneuvering his/her aircraft as necessary to avoid it.
- Tower controller observes both aircraft and can visually separate them. (Non-wake turbulence separation only)

# Visual Separation

Aircraft may be separated by visual means when other approved separation is assured before *and after* the application of visual separation.

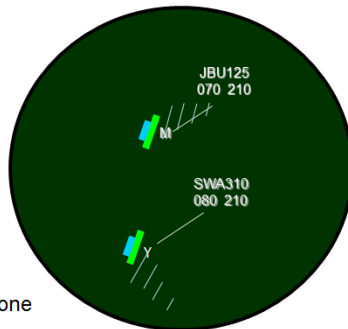
- To ensure that other separation will exist, consider aircraft performance, wake turbulence, closure rate, routes of flight, and known weather conditions

If visual separation is lost, assign a heading and/or altitude to re-establish standard IFR separation.



# Visual Separation

Visual separation may be applied between aircraft under the control of the same facility within the terminal area.



Communication is maintained with at least one of the aircraft involved - or -  
The capability to communicate immediately as prescribed in Para 3-9-3, Departure Control Instructions, Sub-Para a2 is available.  
(The aircraft or sector you need to communicate with is available)

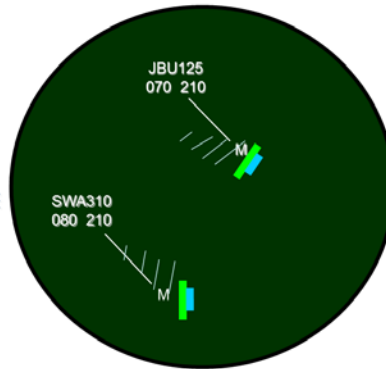


# Visual Separation

Provided (continued):

A pilot sees another aircraft and is instructed to maintain visual separation from the aircraft as follows:

- Tell the pilot about the other aircraft including position, direction and, unless it is obvious, the other aircraft's intention.
- Obtain acknowledgment from the pilot that the other aircraft is in sight.
- If the aircraft are on converging courses, inform the other aircraft of the traffic and that visual separation is being applied.



If the pilot advises he/she has the traffic in sight and will maintain visual separation from it (the pilot must use that entire phrase), the controller need only "approve" the operation instead of restating the instructions.

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## Visual Separation Review

- Once a pilot advises he/she has the traffic in sight and will maintain visual separation from it, the burden of separation becomes the responsibility of that pilot.
- Standard separation must be assured before *and after* the application of visual separation
- To clear for a visual approach the pilot must:
  1. Be #1 for arrival and have the airport in sight
  - or -
  2. Have the preceding aircraft in sight and can follow it

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