

# NOTICE

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
Air Traffic Organization Policy

N JO 3120.146

**Effective Date:**  
January 14, 2011

**Cancellation Date:**  
January 13, 2012

**SUBJ:** Tower Simulation Training

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- 1. Purpose of This Notice.** This notice provides interim guidance to Terminal facilities concerning requirements for tower simulation training. The verbiage in this notice is taken directly from Federal Aviation Administration (FAA) Order JO 3120.4M, Air Traffic Technical Training, currently awaiting signature.
- 2. Audience.** This notice applies to FAA tower facilities, the Service Areas, Terminal Operations Directorates, and the FAA Academy at the Mike Monroney Aeronautical Center.
- 3. Where Can I Find This Notice?** The notice is available on the MyFAA employee Web site at [https://employees.faa.gov/tools\\_resources/orders\\_notices/](https://employees.faa.gov/tools_resources/orders_notices/) and on the air traffic publications Web site at [http://www.faa.gov/air\\_traffic/publications/](http://www.faa.gov/air_traffic/publications/).
- 4. Cancellation.** This notice will be cancelled with the implementation of FAA Order 3120.4M.
- 5. Procedures.** Amend FAA Order JO 3120.4, Appendix 6, Terminal Instructional Program Guide, as follows:

**Section 5. Stage IV: Ground Control Position Training  
(Course 55062)**

**1. Classroom Training. (No Changes).**

**ADD:**

**2. Tower Simulation Problem Administration.** Tower simulation training is being administered at Terminal facilities using the capabilities of the simulation equipment. This gives the developmental an opportunity to learn and demonstrate, under simulated conditions, all the knowledge and skills required of a CPC.

**a. General.**

(1) At facilities where simulation equipment is available, the TA will determine the number of tower simulation training scenarios that the individual must complete. Periodic evaluation scenarios will be conducted to determine the individual's progress.

**EXAMPLE-**

*The TA may require the administration of 18 simulation training LC problems, with numbers 6, 10, 14, and 18 as pass/fail evaluations.*

(2) It is necessary to complete scenarios at the lowest complexity level first and progressively work to the highest. Scenarios at a given complexity level may be administered in any order to provide variation. The developmental will be required to complete training on a given set of control problems similar to those in the operational position. This requirement will ensure the developmental's exposure to several prescribed special events and control situations that could occur.

(3) Simulation problems will be counted as simulation hours. A minimum and maximum number of simulation hours should be established in the local training order.

(4) Up to 1 hour must be allotted for the control problems. This does not include the time spent for briefing and critique. The instructor is not precluded from terminating the simulated problem, prior to the time indicated, if it has been determined that the maximum instructional benefit of the problem has been derived.

(5) The results of the individual's performance during each scenario must be recorded on FAA Form 3120-25 and discussed with the individual (see Appendix 2). Forms used during the evaluation scenario must be retained and filed in the individual's training folder.

**b. Control Problem Development.**

(1) Definitions.

(a) Volume level - A factor expressed as a percentage of the traffic worked during a typical busy period.

(b) Complexity - The number of situations that require thought to resolve an issue or conflict.

(2) General Objectives. To achieve standardization of volume level and problem complexity for all field facilities, the following problem development procedures have been established:

(a) Control problems must be developed for an operational position starting at the 50 percent volume level and progressively increasing to the 110 percent volume level. The additional 10 percent must be added to ensure that the developmental encounters a greater volume of traffic than he/she will normally be expected to control.

(b) The formula is based on 110 percent traffic volume from an average period of a busy day (as defined and validated by the facility).

(c) To protect problem integrity, some variations of the problem should be made. Changes in aircraft identifications, equipment types, altitudes, and times are usually adequate for developing problem variations. Selecting random aircraft for special situations will also add depth to problem variations.

(d) The instructor must determine the weather, flight conditions, VFR traffic, and any abnormal conditions that may affect the overall problem complexity and controller workload. The instructor must simulate these conditions as nearly as possible to add realism to the problem.

(e) The instructor must randomly incorporate pilot readback errors throughout the control problems. These are intentional readback errors made by ghost pilots to the developmental to evaluate the developmental's listening skills.

(f) All control problems must have specific objectives and be directed toward developing the knowledge and ability of those receiving the training. The instructor must ensure that all problem objectives are met.

(g) The instructor must introduce operations or situations that directly relate to problem complexity. Normally it is more effective to introduce these complexity factors at a lower volume level to facilitate learning the associated procedure. If normal operational requirements dictate predetermined changes in runway or airspace configurations or changes in services provided at an operational position which affect complexity, separate problems should be administered for each change. Each problem must state objectives, volume level, and complexity factors.

(h) Positive and methodical steps must be taken when developing simulated tower control problems. Complexity, special control events, abnormal traffic situations, weather conditions, script development, and instructor guides need to be considered to achieve the desired problem objectives.

(3) Simulation Training Problem Objectives. Each problem may contain one or more of the duties listed below. By the completion of this training, the developmental must have independently performed all applicable duties.

- (a) Coordination with LC for runway crossings/usage.
- (b) Issue progressive taxi instructions.
- (c) Intersection departure procedures and phraseology.
- (d) Issue hold short instructions.
- (e) Abbreviated transmissions.
- (f) Ensuring readback/hearback.
- (g) Ensure vehicles/aircraft hold short of runway.
- (h) ASDE-X/ASDE/Airport Movement Area Safety System procedures.
- (i) Instrument landing system/Microwave Landing System critical areas.
- (j) Provide current ATIS/weather information.
- (k) Request PIREP for braking action, low level wind shear, visibility, etc.
- (l) Issue SIGMETs/Hazardous inflight weather advisory service.
- (m) Scanning.
- (n) Priority of duty.
- (o) EDCTs.
- (p) Emergency or unusual situations (for example, observing a cargo door ajar or smoke from an engine).
- (q) Suspicious activity/Man-Portable Air Defense Systems (MANPADS).
- (r) Apply additional facility-identified procedures.

**NOTE-**

*The guidelines outlined above have been proven to be most desirable when developing control problems. There may be other methods, such as obtaining 1 hour's traffic from the actual position and administering it as a control problem. There are pitfalls to this type of problem development, however, because of the wide variance of traffic situations that do not always provide typical air traffic occurrences.*

**c. Simulation Evaluation.**

(1) Simulation evaluation scenarios must be administered at regular intervals during the simulation segment of training. The evaluations must be pass/fail.

(2) Instructions on documenting and grading the evaluation are contained in Appendix B. The following chart is used to grade the scenarios:

**MAXIMUM ERRORS ALLOWED PER SCENARIO BY JOB TASK**

<b>Job Task</b>	<b>Ground Local</b>	
Separation	0	0
Coordination	2	2
Control Judgment	5	5
Methods and Procedures	5	5
Equipment, Communication, and Other	5	5

(3) If the individual does not meet the requirements for successful completion of the scenario, the TA may determine that skill enhancement training is warranted. The skill enhancement training may include:

- (a) Classroom instruction,
- (b) CBI lessons, and/or
- (c) Instructional scenarios.

(4) Skill enhancement training must be followed by a re-evaluation scenario at the same complexity level as that at which the failure occurred.

(5) If the individual does not pass the final graded evaluation scenario, the provisions of EMP-1.14, Supplement Employment Policy for Air Traffic Control Specialist in Training must be followed.

**NOTE-**

*A training review board is not required for classroom or simulation training failure.*

**Section 6. Stage V: Local Control/Cab Coordinator  
Position Training  
(Course 55063)**

**1. Classroom Training. (No Changes).**

**ADD:**

**2. Tower Simulation Problem Administration.** Tower simulation training is being administered at terminal facilities using the capabilities of the simulation equipment. This gives the developmental an opportunity to learn and demonstrate, under simulated conditions, all the knowledge and skills required of a CPC.

**a. General.**

(1) At facilities where simulation equipment is available, the TA must determine the number of tower simulation training scenarios that the individual will complete. Periodic evaluation scenarios must be conducted to determine the individual's progress through the completion of the scenarios.

***EXAMPLE-***

*The TA may require the administration of 18 simulation training LC problems, with numbers 6, 10, 14, and 18 as pass/fail evaluations.*

(2) It is necessary to complete scenarios at the lowest complexity level first and progressively work up to the highest. Scenarios at a given complexity level may be administered in any order to provide variation. The developmental will be required to complete training on a given set of control problems similar to those in the operational position. This requirement will ensure the developmental's exposure to the many prescribed special events and control situations that could occur.

(3) Simulation problems will be counted as simulation hours. A minimum and maximum number of simulation hours should be established in the local training order.

(4) Up to 1 hour must be allotted for the control problems. This does not include the time spent for briefing and critique. The instructor is not precluded from terminating the simulated problem prior to the time indicated if it has been determined that the maximum instructional benefit of the problem has been derived.

(5) The results of the individual's performance during each scenario must be recorded on FAA Form 3120-25 and discussed with the individual (see Appendix B). Forms used during the evaluation scenario must be retained and filed in the individual's training folder.

**b. Control Problem Development.**

**(1) Definitions.**

(a) Volume level: A measure of specialized activity expressed as a percentage of the maximum number of operations a CPC is expected to handle at each operational position.

(b) Complexity: Factors, other than traffic volume, experienced in controlling traffic at a given operational position.

(2) General objectives. To achieve standardization of volume level and problem complexity for all field facilities, the following problem development procedures have been established:

(a) Control problems must be developed for an operational position starting at the 50 percent volume level and progressively increasing to the 110 percent volume level. The additional 10 percent must be added to ensure that the developmental encounters a greater volume of traffic than he/she will normally be expected to control.

(b) The formula is based on 110 percent traffic volume from an average period of a busy day (as defined and validated by the facility).

(c) To protect problem integrity, some variations of the problem should be made. Changes in aircraft identifications, equipment types, altitudes, and times are usually adequate for developing problem variations. Selecting random aircraft for special situations will also add depth to problem variations.

(d) The instructor must determine the weather, flight conditions, VFR traffic, and any abnormal conditions that may affect the overall problem complexity and controller workload. The instructor must simulate these conditions as nearly as possible to add realism to the problem.

(e) The instructor must randomly incorporate pilot readback errors throughout the control problems. These are intentional readback errors made by ghost pilots to the developmental in order to evaluate the developmental's listening skills.

(f) All control problems must have specific objectives and be directed toward developing the knowledge and ability of those receiving the training. The instructor must ensure that all problem objectives are met.

(g) The instructor must introduce operations or situations that directly relate to problem complexity. Normally it is more effective to introduce these complexity factors at a lower volume level to facilitate learning the associated procedure. If normal operational requirements dictate predetermined changes in runway or airspace configurations or changes in services provided at an operational position which affect complexity, separate problems should be administered for each change. Each problem must state objectives, volume level, and complexity factors.

(h) Positive and methodical steps must be taken when developing simulated tower control problems. Complexity, special control events, abnormal traffic situations, weather conditions, script development, and Instructor Guides need to be considered to achieve the desired problem objectives.

(3) Simulation training problem objectives. Each problem may contain one or more of the duties listed below. By the completion of this training, the developmental must have independently performed all applicable duties.

(a) Demonstrate appropriate separation:

- (i) Between arrival and departure aircraft.
- (ii) Simultaneous operations on parallel runways.
- (iii) Intersecting runways.
- (iv) Successive departure aircraft.
- (v) Helicopter operations.

- (vi) Visual separation.
- (b) Land and hold short operations.
- (c) TIPH procedures.
- (d) Wake Turbulence Separation.
- (e) Canceling approach clearance and subsequent coordination with radar.
- (f) Initiate a go-around and subsequent coordination with radar.
- (g) Correctly instruct aircraft where to enter traffic pattern.
- (h) Coordination with Ground Control for Runway crossing/usage.
- (i) Scanning.
- (j) Solicit PIREPS when appropriate.
- (k) EDCT.
- (l) Apply appropriate radio failure procedures.
- (m) Recognize an aircraft with an inoperative transponder.
- (n) Resolve on emergency situation.
- (o) Recognize weather on a BRITE/TDW display and advise aircraft concerned.
- (p) Position relief briefing.
- (q) Suspicious activity/MANPADS.
- (r) Apply additional facility-identified procedures.

Special situations should not be limited to those shown, but should also include situations initiated by facility instructors.

***NOTE-***

*The guidelines outlined above have been proven to be most desirable when developing control problems. There may be other methods, such as obtaining 1 hour's traffic from the actual position and administering it as a control problem. There are pitfalls to this type of problem development; however, because of the wide variance of traffic situations that do not always provide typical air traffic occurrences.*

**c. Simulation Evaluation.**

- (1) Simulation evaluation scenarios must be administered at regular intervals during the simulation segment of training. The evaluations must be pass/fail.
- (2) Instructions on documenting and grading the evaluation are contained in Appendix 2. The following chart is used to grade the scenarios:

**MAXIMUM ERRORS ALLOWED PER SCENARIO BY JOB TASK**

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Separation	0	0
Coordination	2	2
Control Judgment	5	5
Methods and Procedures	5	5
Equipment, Communication, and Other	5	5

(3) If the individual does not meet the requirements for successful completion of the scenario, the TA may determine that skill enhancement training is warranted. The skill enhancement training may include:

- (a) Classroom instruction.
- (b) CBI lessons.
- (c) Instructional scenarios.

(4) Skill enhancement training must be followed by a re-evaluation scenario at the same complexity level as that at which the failure occurred.

(5) If the individual does not pass the final graded evaluation scenario, the provisions of EMP-1.14 must be followed.

**NOTE-**

*A training review board is not required for classroom or simulation training failure.*

**6. Distribution.** This notice is distributed to FAA tower facilities, the service areas, Terminal operations directorates, and the FAA Academy at the Mike Monroney Aeronautical Center.

**7. Background.** Terminal Services recommended changes to FAA Order 3120.4 to reflect the growing use of Terminal Simulation Systems, which are being used at the FAA Academy and at a number of facilities throughout the Country. Simulation has proven to be a highly effective training tool. With this change to FAA Order JO 3120.4, the FAA standardizes the use of simulation for training Terminal personnel in the facilities and at the Academy.



Steven M. Osterdahl  
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1/14/11  
Date Signed