

CHANGE

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

**JO 3120.4N
CHG. 1**

Air Traffic Organization Policy

Effective Date:
09/30/2014

SUBJ: Air Traffic Technical Training

- 1. Purpose.** This amends the subject order to add “Recovery in Air Traffic Control (ATC) Operations” training requirements to Terminal and En Route Instructional Program Guides (IPGs).
- 2. Audience.** All Air Traffic Organization (ATO) personnel and anyone using ATO directives.
- 3. Where Can I Find This Notice?** JO 3120.4N Change 1 is available on the MyFAA employee website at https://employees.faa.gov/tools_resources/orders_notices/ and on the air traffic publications website at http://www.faa.gov/air_traffic/publications/.
- 4. Explanation of Policy Change.** JO 3120.4N Change 1 incorporates N JO 3120.148, which added training requirements to the Terminal and En Route IPGs regarding Recovery in ATC Operations. The ATO Safety Management System identified five hazards that contribute to risk in the National Airspace System (NAS) for fiscal year (FY) 2013. The lack of recovery or effectively re-establishing the margin of safety after a loss of separation was one of the hazards identified through the Risk Analysis Process. A Corrective Action Plan was developed with representatives from Service Units resulting in action items to address the FY2013 Top Five (5) Hazards. These action items included adding recovery training requirements to Terminal and En Route Instructional Program Guides in the Air Traffic Technical Training directive.

Safety Risk Management was conducted on the changes in the NAS contained in this Change 1. A Safety Risk Management Decision Memorandum documented that these changes do not introduce any new safety risk into the NAS.

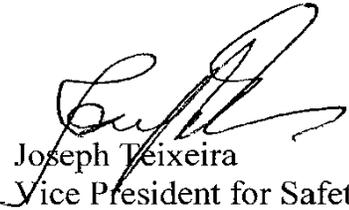
- 5. Action.** Amend JO 3120.4N dated September 30, 2013 as follows.

PAGE CHANGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated
D-34-35	9/30/13	D-34-35	9/30/14
F-43-44	9/30/13	F-43-44	9/30/14
F-70-76	9/30/13	F-70-78	9/30/14

- 6. Disposition of Transmittal Paragraph.** Retain this transmittal sheet until the directive is cancelled by a new directive.

7. Distribution. Change 1 is distributed to the following ATO service units: Air Traffic Services, System Operations, and Mission Support; Office of the Service Center; the Air Traffic Oversight Service; and the Mike Monroney Aeronautical Center.



Joseph Teixeira
Vice President for Safety and Technical Training
Air Traffic Organization

Figure D-5: Sample Radar Simulation Scenarios

Scenario	Volume (%)	Type
A	70	Familiarization
B	70	Familiarization
C	75	Familiarization
D	75	Familiarization
E	75	Familiarization
1	80	Instructional
2	80	Instructional
3	80	Evaluation-Preparatory
4	80	Instructional
5	80	Evaluation (Pass/Fail)
6	85	Instructional
7	85	Instructional
8	90	Instructional
9	90	Instructional
10	90	Evaluation (Pass/Fail)
11	95	Instructional
12	95	Instructional
13	95	Instructional
14	100	Instructional
15	100	Evaluation (Pass/Fail)

(7) Additional Scenarios.

(a) Following successful completion of the evaluations and prior to the start of OJT, additional control scenarios may be administered on each sector in the developmental's area of specialization. These scenarios are intended to introduce the developmental/CPC-IT to sector-specific operations and traffic flows.

(b) The scenarios will provide a highly interactive instructional environment in which the instructor and developmental/CPC-IT will be able to discuss strategies and alternatives.

(c) The number of scenarios will be determined by the TA based on the needs of the area of specialization.

(d) Control scenarios may use combined sector and position configurations.

(8) Recovery in ATC Operations

(a) Training must be conducted in three parts: classroom discussion with examples, performance in laboratory and/or part-task scenarios, and post-scenario discussions. If possible, the training team that will instruct the student during the On-the-Job-Training (OJT) process should also participate in the student's recovery training.

(b) A minimum of four laboratory or part-task scenarios involving Recovery in ATC Operations must be administered prior to the start of OJT. These scenarios are intended to introduce the student to methods of re-establishing the correct margin of safety in response to an unsafe situation/outcome.

(c) The scenarios are non-pass/fail with no time limit established. The scenarios must provide an interactive instructional environment in which the instructor and student are able to discuss methods of recovery, strategies, and alternatives that assist in re-establishing minimum separation. Post-scenario discussions should include inadequate recovery actions to mitigate the event, other recovery actions that could be taken to mitigate the event, possible controller actions that could make the event worse, and situations where no recovery actions were necessary.

(d) At the Training Administrator's (TA) discretion, scenarios may include: converging aircraft, aircraft climbing through the altitude of a level aircraft, faster aircraft climbing through the altitude of a slower preceding aircraft, aircraft simultaneously climbing and descending, compression, aircraft missing the read-back of a climb or descent clearance, similar-sounding call sign aircraft, aircraft responding to a Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisory (RA), loss of data blocks (target only), transposed call signs, lost communication, emergencies, etc.

2. OJT.

a. Through OJT, the developmental/CPC-IT must demonstrate the ability to satisfactorily perform the applicable job subtasks described in appendix B of this order.

b. Developmentals must receive a minimum of 1 hour of instruction on the primary backup system prior to certification on the first radar sector. This requirement is not required for facilities operating with ERAM.

c. Developments must receive a minimum of 1 hour of instruction working the Radar Coordinator (Tracker/Hand-off) position prior to certification on their final radar position. This training must be documented on FAA Form 3120-25.

3. OJT checklists should be used as a mutual training tool for the OJTI and the development/CPC-IT. When a checklist is used, the developmental/CPC-IT must be provided with the appropriate stage checklist during the initial training team meeting for that stage. Facilities may develop checklists locally. A sample OJT checklist of Radar Control is provided as an example. Completed OJT Checklist forms must be retained with other required training documentation.

Figure F-3: Sample Simulation Scenarios

Scenario	Volume (%)	Type
A	70	Familiarization
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10	90	Evaluation (Pass/Fail)
11	95	Instructional
12	95	Instructional
13	95	Instructional
14	100	Instructional
15	100	Evaluation (Pass/Fail)

i. Additional Scenarios.

(1) Following successful completion of the evaluations and prior to the start of OJT, additional control scenarios may be administered on each sector in the developmental's/CPC-IT's area of specialization. These scenarios are intended to introduce the developmental/CPC-IT to sector-specific operations and traffic flows.

(2) The instructional scenarios will provide a highly interactive instructional environment in which the instructor and the developmental/CPC-IT will be able to discuss strategies and alternatives.

(3) The number of scenarios will be determined by the TA based on the needs of the facility.

- (4) Instructional scenarios may use combined sector and position configurations.

j. Recovery in ATC Operations

(1) Training must be conducted in three parts: classroom discussion with examples, performance in laboratory and/or part-task scenarios, and post-scenario discussions. If possible, the training team that will instruct the student during OJT should also participate in the student's recovery training.

(2) A minimum of four laboratory or part-task scenarios involving Recovery in ATC Operations must be administered prior to the start of OJT. These scenarios are intended to introduce the student to methods of re-establishing the correct margin of safety in response to an unsafe situation/outcome.

(3) The scenarios are non-pass/fail with no time limit established. The scenarios must provide an interactive instructional environment in which the instructor and student are able to discuss methods of recovery, strategies, and alternatives that assist in re-establishing minimum separation. Post-scenario discussions should include inadequate recovery actions to mitigate the event, other recovery actions that could be taken to mitigate the event, possible controller actions that could make the event worse, and situations where no recovery actions were necessary.

(4) At the TA's discretion, scenarios may include: runway incursions, runway excursions, aircraft on converging runways, missed approach, departures and go-arounds, compression, turns to final, hear-back/read-back, similar sounding call-signs, airport construction, loss of data blocks (target only), transposed call signs, lost communication, receiver only/light gun signals, emergencies, etc.

5. OJT. Through OJT, the developmental/CPC-IT must demonstrate the ability to satisfactorily perform the applicable job subtasks described in appendix B of this order.

6. OJT Checklist. OJT checklists should be used as a mutual training tool for the OJTI and the developmental/CPC-IT. When a checklist is used, the developmental/CPC-IT must be provided with the appropriate stage checklist during the initial training team meeting for that stage. Facilities may develop checklists locally. A sample OJT checklist of Radar Control is provided as an example. Completed OJT Checklist forms must be retained with other required training documentation.

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(4) At the TA's discretion, scenarios may include: converging aircraft, aircraft climbing through the altitude of a level aircraft, faster aircraft climbing through the altitude of a slower preceding aircraft, aircraft simultaneously climbing and descending, compression, aircraft missing the read-back of a climb or descent clearance, similar-sounding call sign aircraft, aircraft responding to a TCAS RA, loss of data blocks (target only), transposed call signs, lost communication, emergencies, etc.

Figure F-7: Radar/Handoff/Coordinator Control Simulation Checklist

Radar/Handoff/Coordinator Control (RC/HO/CI) Simulation Checklist		
Developmental / CPC-IT		Facility
As each item on the checklist is completed, the instructor must record the date, and the developmental/CPC-IT must initial the checklist, using operating initials.		
Indicate with a "N/A" in the date column for items on the checklist that do not apply.		
I. Apply LOA/SOP/7110.65		Initials
		Date
A.	Radar procedures listed in LOA, SOP, and JO 7110.65	
II. Demonstrate Understanding of Identification Methods		
A.	Primary Radar Identification	
1.	Observing a departing aircraft target within 1 mile of the takeoff runway end at airports with an operating control tower, provided that one of the following methods of coordination is accomplished:	
	a. A verbal rolling/boundary notification is issued for each departure.	
	b. A non-verbal rolling/boundary notification is used for each departure aircraft.	
2.	Observing a target with respect to a fix.	
B.	Model 3/A (Beacon)	
1.	"Ident"	
2.	Change to specific discrete code.	
3.	Squawk "stand-by" and squawk "normal" modes.	
C.	Terminal Automation Systems Identification Methods: Standard Terminal Automation Replacement System (STARS), Common ARTS (CARTS), and En Route Automated Radar Tracking System (EARTS).	
1.	Auto-acquired aircraft.	
D.	Questionable Identification	
1.	Multiple targets.	
2.	Wrong transponder code.	
3.	Loss of transponder requiring initial transition to non-radar separation/routing.	
E.	Position Information	
1.	Notification requirements after initial identification	
F.	Identification Status	
1.	Radar contract and radar contact lost.	
G.	Radar Data Blocks	
1.	Retain data blocks as appropriate.	
2.	Prearranged coordination impacts.	
H.	Radar Termination	
1.	Aircraft on approach to a non-Tower-controlled airport or after Tower closes.	
2.	Aircraft cancels Instrument Flight Rules (IFR).	

III. Transfer Radar Identification			
1.	Application.		
2.	Terms.		
3.	Methods (demonstrates appropriate phraseology).		
4.	Traffic.		
5.	Transferring Controller Handoff. a. Items to ensure prior to transferring communication. b. Verbal coordination. c. Necessary coordination.		
6.	Receiving Controller Handoff. a. Correlation of target with position. b. Restrictions. c. Control. d. Coordination. e. Initiation of an automated inter-facility handoff action and "NAT" or "IF" is displayed in the full data block.		
7.	Point-Out a. Automated point out function. b. Verbal (demonstrates appropriate phraseology).		
8.	Automated Information Transfer (AIT)		
IV. Ensure Radar Separation			
1.	Application.		
2.	Airspace within which radar separation. a. When less than 40 miles. b. When 40 miles or more. c. Narrowband radar operations. d. For single sensor ASR-9/11 with Mode S. e. STARS Multi-Sensor Mode. f. Micro-En Route Automated Radar Tracking System (MEARTS) Mosaic Mode. g. Wake turbulence.		
3.	Target separation.		
4.	Minima. a. Broadband Radar System or Digital Terminal Automation System (DTAS) (includes single sensor). b. Stage A/Direct Access Radar Channel (DARC), MEARTS Mosaic Mode, Terminal Mosaic/Multi-Sensor Mode. c. Transitioning from Terminal to En Route control. d. STARS Single Sensor Mode/Multi-Sensor Mode. e. Wake Turbulence Application: (1) Aircraft operating directly behind and less than 1,000 feet below, or following an aircraft conducting an instrument approach.		
5.	Vertical Application a. Valid Mode C. b. Reports leaving or is observed (valid Mode C). c. Exceptions.		
6.	Passing or diverging.		
7.	Formation flights.		

8.	Separation from obstructions.		
9.	Adjacent Airspace/Edge of Scope/Beacon Target Displacement.		
V. Ensure Vector Requirements			
1.	Separation of Aircraft a. Departure/Arrival-non-Tower control airports. b. Aircraft crossing courses. c. Sequence of two or more arriving aircraft, or En Route aircraft, on the same route/direction. d. Aircraft descending/climbing through altitude of another on the same route/same direction. e. Aircraft descending/climbing through altitude of another aircraft on same route in opposite direction. f. Separation of at least two aircraft at same altitude on parallel courses. g. Radar-identified aircraft from known non-radar aircraft. h. Primary targets from primary targets. i. Beacon targets from beacon targets. j. Beacon targets from primary targets. k. Break up formation flights.		
2.	No-gyro vectors.		
3.	Movement of aircraft into Military Operations Area (MOA)/Air Traffic Control Assigned Airspace (ATCAA) and recovery from MOA/ATCAA.		
VI. Implement Special Handling			
A.	Priority Aircraft		
1.	Lifeguard.		
2.	Presidential.		
3.	Semiautomatic Flight Inspection Aircraft (SAFI).		
4.	Air Evacuation.		
B.	Emergency		
1.	Icing.		
2.	Lost engine.		
3.	Lost aircraft.		
4.	Overdue aircraft.		
5.	In-flight equipment malfunction/emergency (loss of engine, fire, loss of oil pressure, windscreen broken, etc.)		
C.	Hijacking/Bomb Threats		
D.	Aircraft with Minimum Fuel		
E.	Loss of Navigational Equipment		
F.	Chaff Drop		
G.	Electronic Countermeasures (ECM) Activity		
VII. Handle Traffic Situations			
A.	Failure of aircraft to comply with route clearance.		
B.	Failure of aircraft to comply with altitude clearance.		
C.	Simultaneous arrivals where first aircraft is at highest altitude and last aircraft is at lowest altitude.		

D.	Multiple arrivals sequenced with slowest aircraft first and succeeding aircraft faster. Unusual coordination altitudes/speed control/sequence required.		
E.	Fast departure following a slower aircraft on the same route.		
F.	Aircraft deviating around weather.		
G.	Tracking aircraft under law enforcement surveillance.		
H.	Fuel dumping.		
I.	Two or more aircraft in-trail; and use of speed adjustment to maintain separation.		
J.	Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisories (TA and RA modes).		
K.	VFR-On-Top (OTP) handling and separation.		
VIII. Execute Appropriate Communication/Coordination			
A.	Aircraft unable to communicate on a TRACON frequency.		
B.	Marginal altitude/area for communications.		
C.	No Radio (NORDO) aircraft.		
D.	NAS system outage, e.g., En Route Backup Surveillance System (EBUS)/DARC.		
E.	Aircraft loss of communication and attempt to reestablish communication, using alternate methods, e.g., other aircraft, previous frequency, transmitter change, Flight Service Station (FSS), use of 243.0, and Aeronautical Radio, Inc. (ARINC), etc.		
F.	Request from aircraft on frequency to change altitude or route prior to entering your sector.		
G.	Point-out.		
H.	Coordination with neighboring facility on non-LOA request.		
I.	Coordination with appropriate adjacent sector prior to authorizing aircraft to change altitude.		
J.	Manual hand-offs.		
K.	Automated hand-offs.		
L.	Transfer of control/communications requirements.		
M.	Loss of Mode C readout.		
N.	Request from aircraft on frequency to change altitude or route after entering your sector		
	I certify that all items in this checklist have been completed and/or discussed. NOTE: Please return to TA when complete.		

	Name (Please Print)	Signature	Date
DEV/CPC-in-training			
Instructor			
Frontline Manager			

3. OJT. Through OJT, the developmental/CPC-IT must demonstrate the ability to satisfactorily perform the applicable job subtasks described in appendix B of this order.

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Figure F-8: Course 55065 OJT CHECKLIST

Radar/Handoff/Coordinator Control (RC/HO/CI) OJTI Checklist			
NOTE: The trainee must be able to demonstrate knowledge of the following. Indicate with an "N/A" in the date column items on the checklist that do not pertain			
Name:	OJTI	DEV	DATE
1	Review and demonstrate backup Radar modes and methods.		
a	STARS FSL to ESL selection.		
b	Radar site selection including GATEWAY.		
c	Center Radar Arts Presentation/Processing CENRAP (not available with En Route Automation Modernization (ERAM)).		
2	Review and demonstrate the following methods/applications:		
a	Traffic alerts and Minimum Safe Altitude Warning (MSAW) priorities.		
b	Primary radar identification methods.		
c	Target marker requirements and pre-arranged coordination agreements.		
d	Reposition systems area/lists/preview area.		
e	Reposition map locations (e.g., de-center).		
f.	Providing vertical separation during opposing base-leg turns to final.		
g	Visual approach clearance following the preceding arriving aircraft.		
h	Appropriate application of passing and diverging.		
i.	Use of visual separation between two or more departing and/or en route aircraft.		
j.	Pressurization issues on high-climbing departures (e.g., remain below 10K).		
k	Termination of radar service.		
l.	Wake turbulence spacing and advisory requirements.		
m	Merging target procedures.		
n	Weather and chaff services and filters, e.g., Linear/Circular Polarization (LP/CP).		
o	Dependent and independent parallel approach procedures.		
p	Final approach course intercept requirements (e.g., 20-30 degrees).		
q	Initiating and/or accepting an automated handoff.		
r.	Handling missed approach/go-around.		
s	Initiating and/or accepting an automated Point Out.		
t.	Transfer of communications points, e.g., for Air Traffic Control Tower (ATCT), the Final Approach Fix.		
u	Initiating and/or accepting a non-radar block.		
v	Special military operations (site specific).		
w	Arial photography operations.		
x	Compliance with Traffic Management Initiatives, e.g., Miles in Trail (MIT), Traffic Management Advisor (TMA).		

y	VFR-On-Top separation and procedures.			
3	Demonstrate understanding of EBUS operational impact on Terminal operations.			
I certify that all items in this checklist have been completed and/or discussed. NOTE: Please return to TA when complete.				
	Print Name	Signature	Date	
Developmental/ CPC-IT				
OJTI				
Frontline Manager				

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