Federal Aviation Administration

55054003
EN ROUTE RADAR ASSOCIATE CONTROLLER TRAINING PART C: ADVANCED CONCEPTS

Lesson 19: En Route Automation System Procedures

Version: 1.0 2022.08

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LESSON PLAN DATA SHEET

Course Name	En Route Radar Associate Controller Training Part C: Advanced Concepts
Course Number	55054003
Lesson Title	En Route Automation System Procedures
Duration	1 hour 30 minutes (includes lesson and ELT)
Version	1.0 2022.08
Reference(s)	JO 7110.65, Air Traffic Control; JO 7110.125, Controller Pilot Data Link Communications (CPDLC) in the ERAM Environment
Prerequisites	NONE
Handout(s)	NONE
Exercise / Activity	NONE
Assessments	YES - Written
Materials and Equipment	⊙ Pencil and/or pen
Other Pertinent Information	⊙ **Ensure lesson materials are downloaded to the classroom computer** ⊙ Appendix A, Miscellaneous Abbreviations ⊙ This lesson is based on ERAM EAE410. ⊙ The lesson has been reviewed and reflects current orders and manuals as of April 2022.

LESSON ICON LEGEND

	Description
	The Activity icon indicates an exercise, lab, or hands-on activity.
	The Discussion Question icon signals a discussion question to be asked to the students.
	The Handout icon indicates a handout is to be distributed to the students.
	The Instructor Note icon is in hidden text and indicates text that is for the instructor only.
	The Multimedia icon indicates a video or audio clip is in the presentation.
	The Phraseology icon indicates that phraseology is in the content.
	The WBT icon indicates a component of web-based training.
	The Click icon indicates a PPT slide with click-based functionality to present additional information.
	The Definition icon indicates a published definition.

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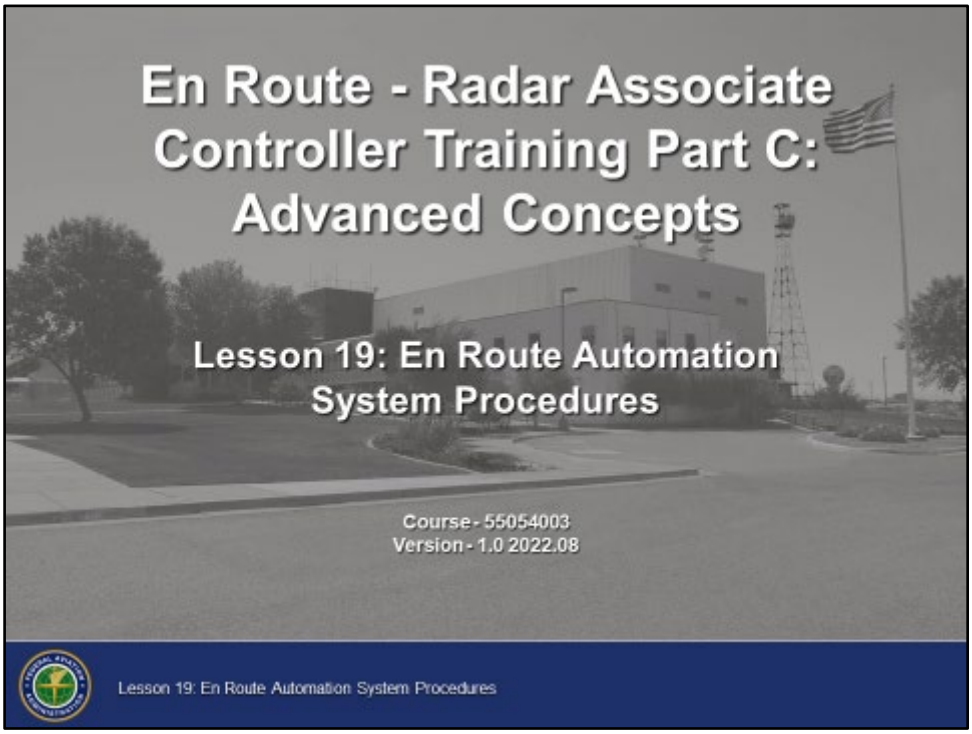
LESSON INTRODUCTION

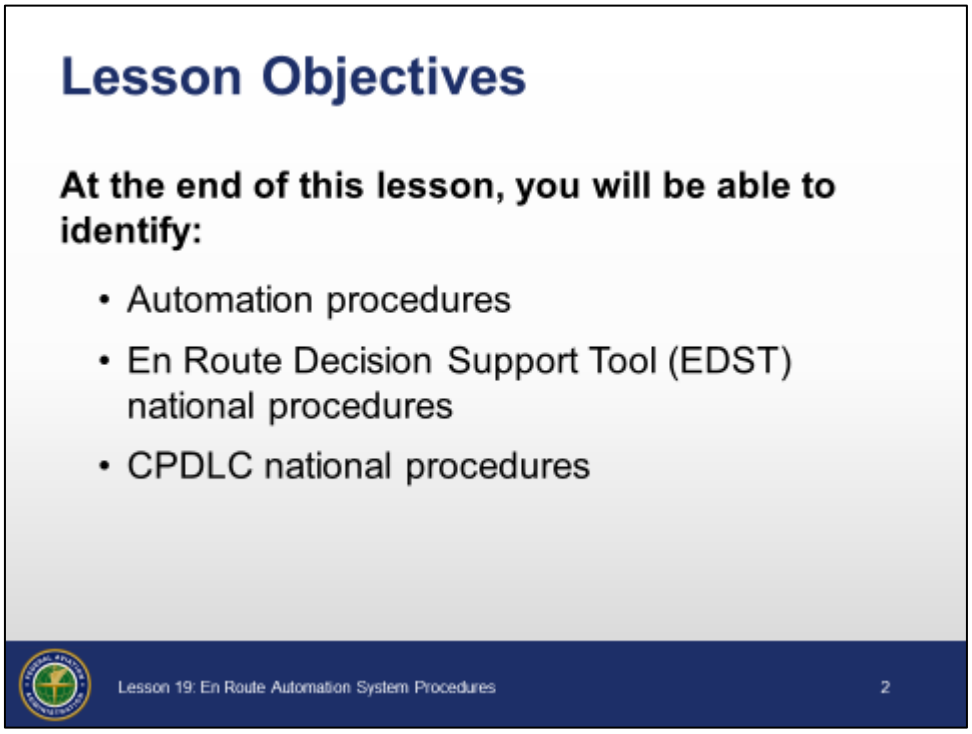
Overview



Knowledge and understanding of En Route Automation System (EAS) procedures is required in order to perform your duties as a Radar Associate Controller.

LESSON INTRODUCTION

Lesson Objectives



⊙ At the end of this lesson, you will be able to identify:

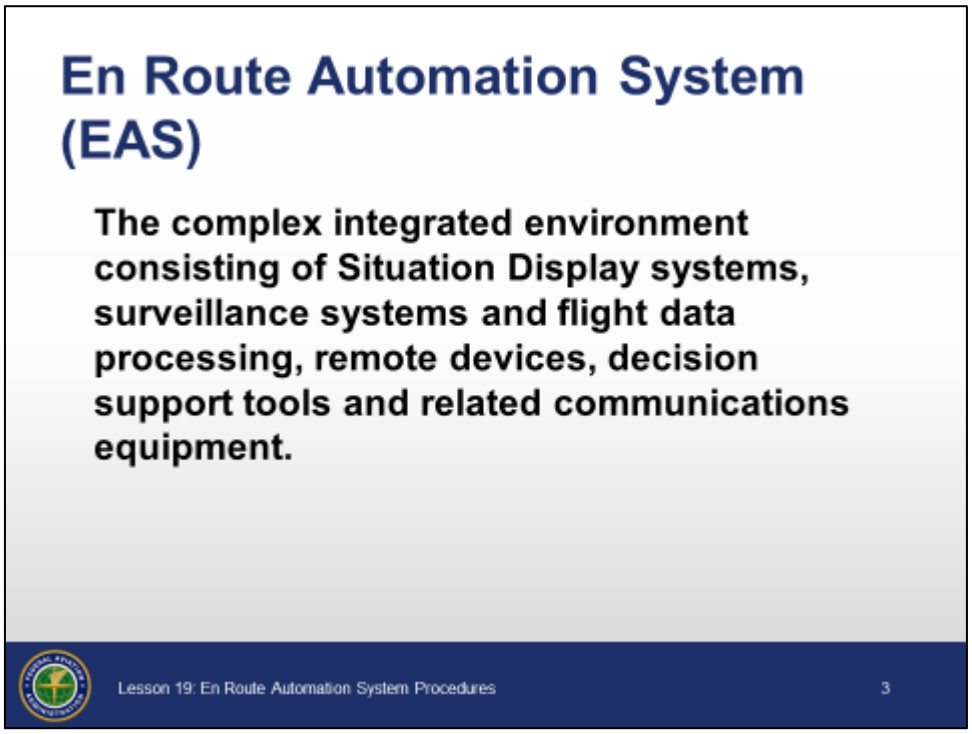
- Automation procedures
- En Route Decision Support Tool (EDST) national procedures
- CPDLC national procedures

NOTE: There will be a graded end-of-lesson test upon completion of the lesson. The passing score is 70%. If you do not achieve a score of 70%, you will be provided study time and one retake of an alternate end-of-lesson test.

AUTOMATION PROCEDURES

En Route Automation System (EAS)

JO 7110.65, PCG

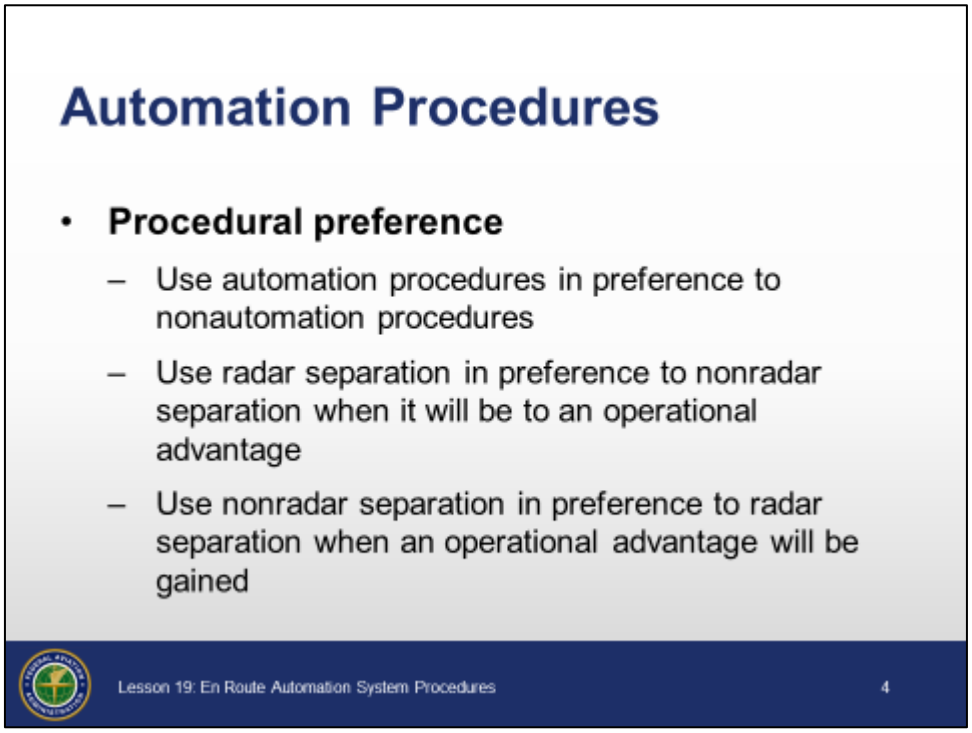


EN ROUTE AUTOMATION SYSTEM (EAS) - The complex integrated environment consisting of Situation Display system, surveillance systems and flight data processing, remote devices, decision support tools and related communications equipment that form the heart of the automated IFR air traffic control system. It interfaces with automated terminal systems and is used in the control of en route IFR aircraft.

AUTOMATION PROCEDURES *(CONT'D)*

Procedural Preference

JO 7110.65, par. 2-1-3



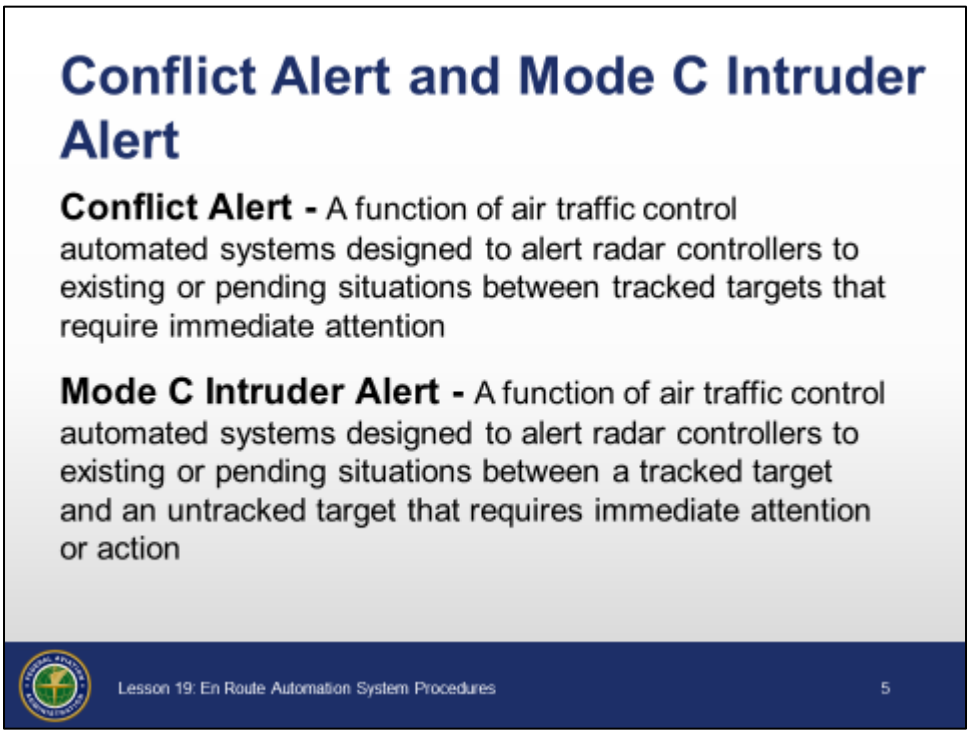
⊙ Procedural preference

- Use automation procedures in preference to nonautomation procedures when workload, communications, and equipment capabilities permit
- Use radar separation in preference to nonradar separation when it will be to an operational advantage and workload, communications, and equipment permit
- Use nonradar separation in preference to radar separation when the situation dictates that an operational advantage will be gained

AUTOMATION PROCEDURES *(CONT'D)*

Conflict Alert and Mode C Intruder Alert

JO 7110.65, par. 5-14-1; PCG



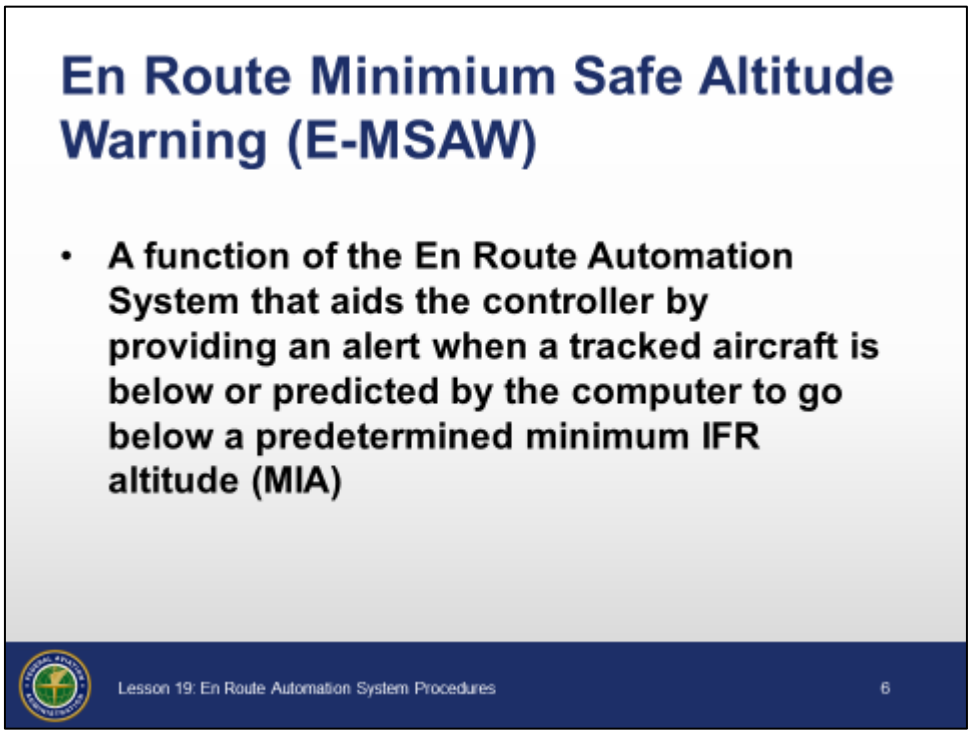
CONFLICT ALERT (CA) - A function of air traffic control automated systems designed to alert radar controllers to existing or pending situations between tracked targets that require immediate attention.

MODE C INTRUDER ALERT (MCI) - A function of air traffic control automated systems designed to alert radar controllers to existing or pending situations between a tracked target and an untracked target that requires immediate attention or action.

- When a CA or MCI is displayed, evaluate the reason for the alert without delay and take appropriate action
  - If another controller is involved in the alert, initiate coordination to ensure an effective course of action, however coordination is not required when immediate action is dictated
- A command suppressing a CA or MCI alert constitutes acknowledgment for the alert and signifies the appropriate action has been, or will be taken
- If you observe a CA or MCI alert in another controllers airspace, do not assume that the other controller has observed the alert and is taking action

En Route Minimum Safe Altitude Warning (E-MSAW)

JO 7110.65, par. 5-14-2; PCG

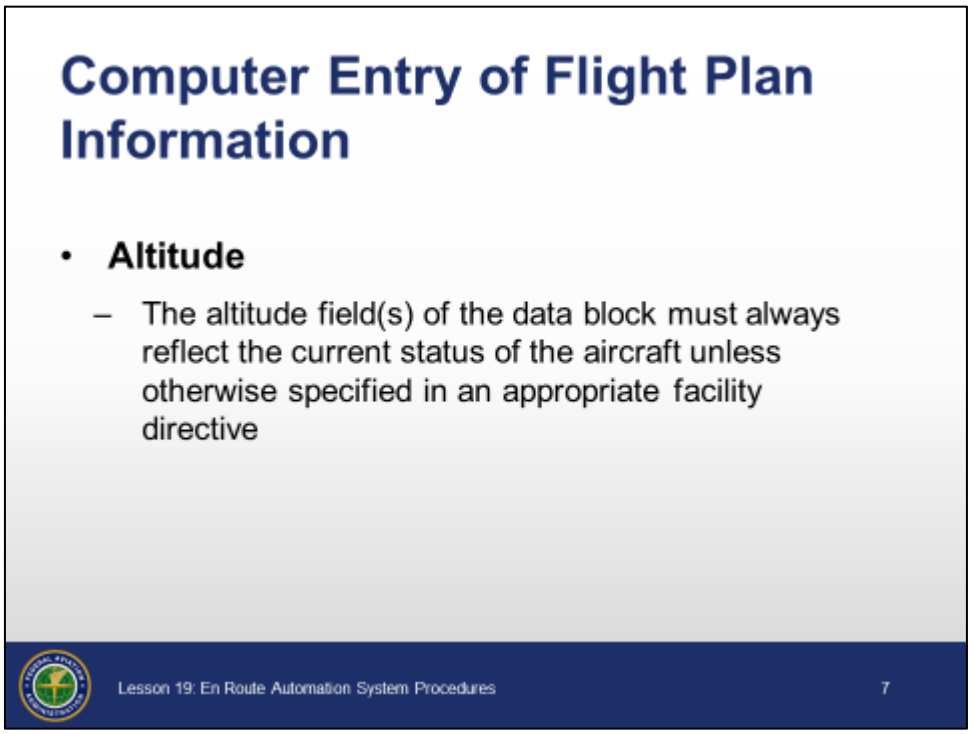


EN ROUTE MINIMUM SAFE ALTITUDE WARNING (E-MSAW) - A function of the En Route Automation System that aids the controller by providing an alert when a tracked aircraft is below or predicted by the computer to go below a predetermined minimum IFR altitude (MIA).

- When an E-MSAW alert is displayed, immediately analyze the situation and take the appropriate action to resolve the alert
- A command suppressing or inhibiting E-MSAW alerts constitutes acknowledgment for the alert and indicates that appropriate action has been, or will be taken to resolve the situation

Computer Entry of Flight Plan Information - Altitude

JO 7110.65, par. 5-14-3



⊙ Computer Entry of Flight Plan Information

- Altitude
  - The altitude field(s) of the data block must always reflect the current status of the aircraft unless otherwise specified in an appropriate facility directive
  - Unless otherwise specified in a facility directive or letter of agreement, do not modify assigned or interim altitude information prior to establishing communication with an aircraft that is outside your area of jurisdiction unless verbal coordination identifying who will modify the data block has been accomplished
  - Whenever an aircraft is cleared to maintain an altitude different from that in the flight plan database, enter into the computer one of the following:
    - The new assigned altitude, if the aircraft will maintain the new altitude
    - An interim altitude, if the aircraft will maintain the new altitude for a short period of time and subsequently be recleared to the altitude in the flight plan database or a new altitude or a new interim altitude

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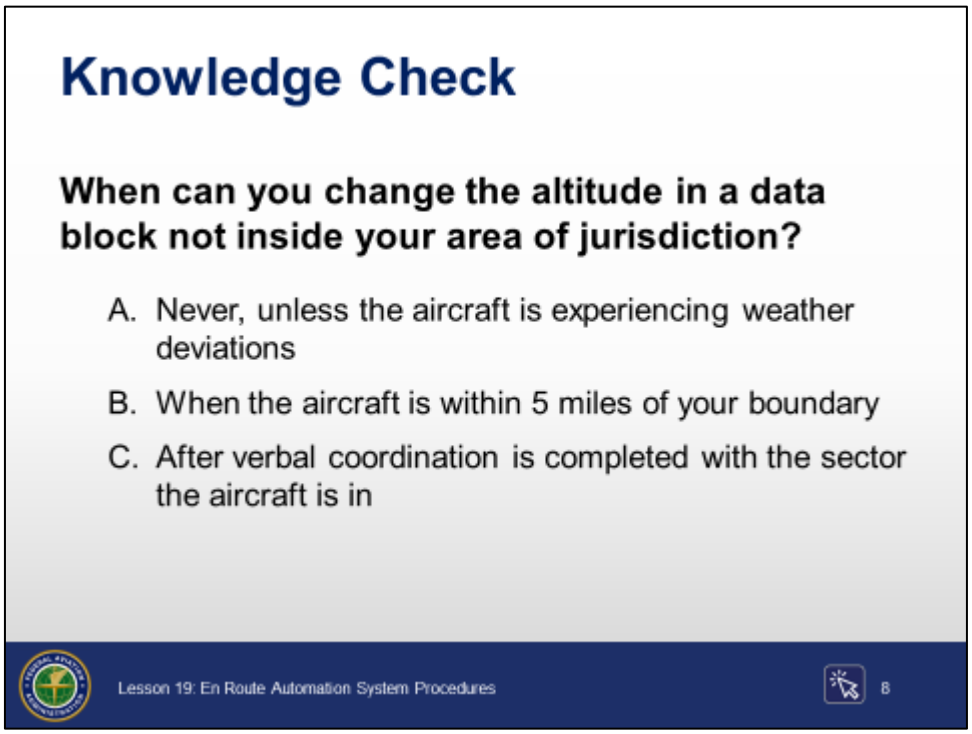
AUTOMATION PROCEDURES *(CONT'D)*

Computer Entry of Flight Plan Information - Altitude (Cont'd)	○ A procedure altitude, if the aircraft is cleared to vertically navigate (VNAV) on a SID/STAR with published restrictions ○ Where appropriate for interfacility handoffs, a Local Interim Altitude (LIA) when the assigned altitude differs from the coordinated altitude, unless verbally coordinated or specified in a letter of agreement or facility directive

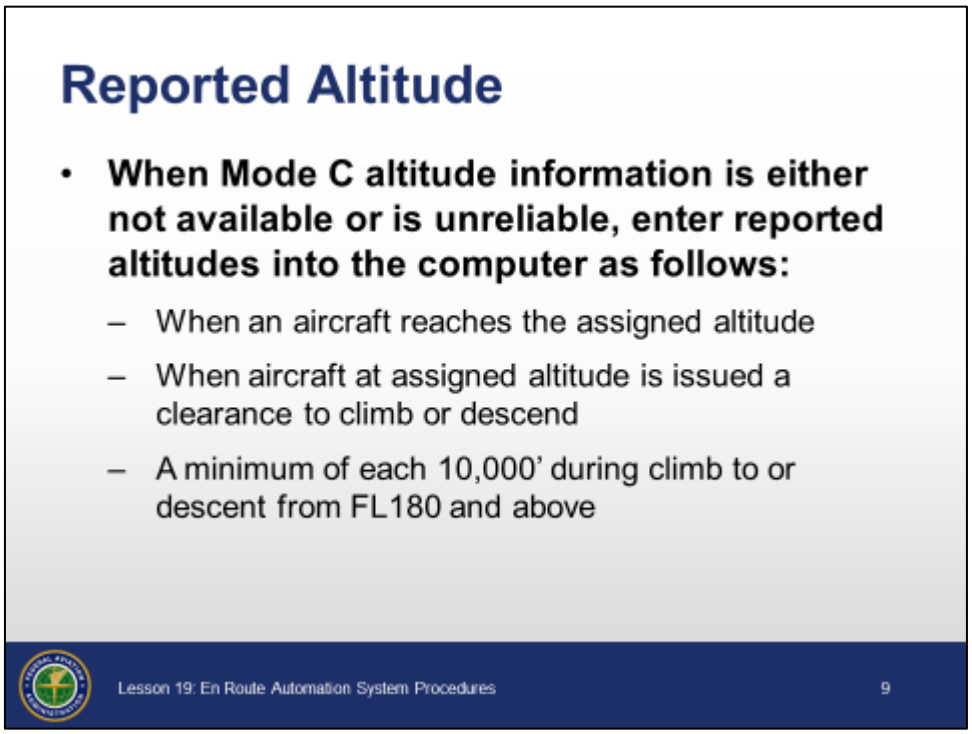
Knowledge Check



Question: When can you change the altitude in a data block not inside your area of jurisdiction?

Reported Altitude

JO 7110.65, par. 5-14-4



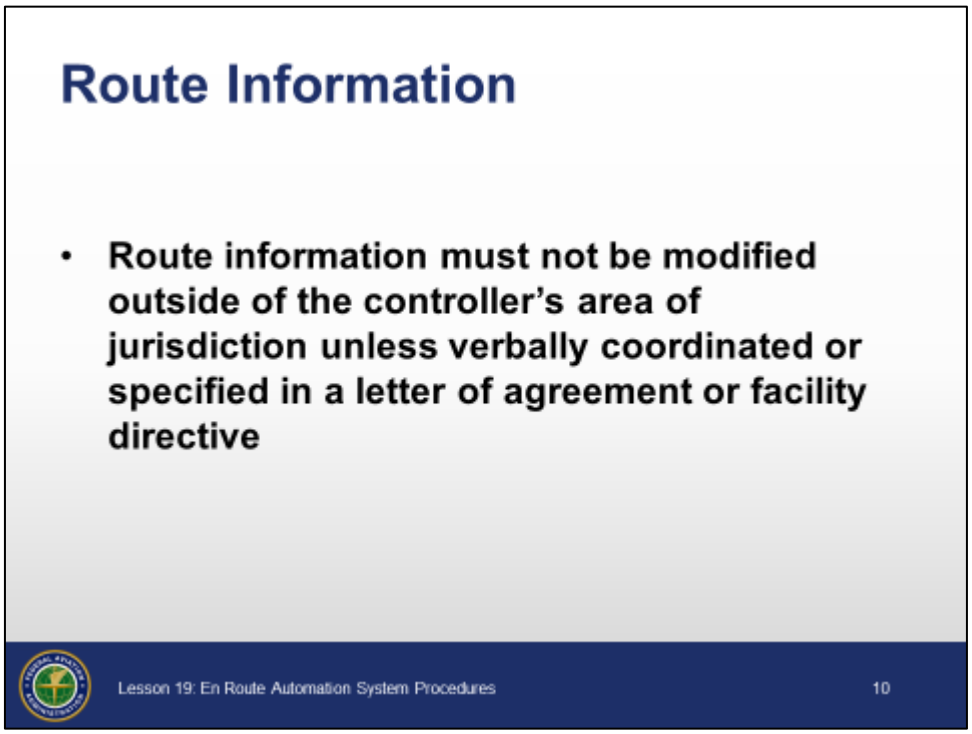
⊙ When Mode C altitude information is either not available or unreliable, enter reported altitudes into the computer as follows:

- When an aircraft reaches the assigned altitude
- When an aircraft at an assigned altitude is issued a clearance to climb or descend
- A minimum of each 10,000' during climb to or descent from FL180 and above

AUTOMATION PROCEDURES *(CONT'D)*

Route Information

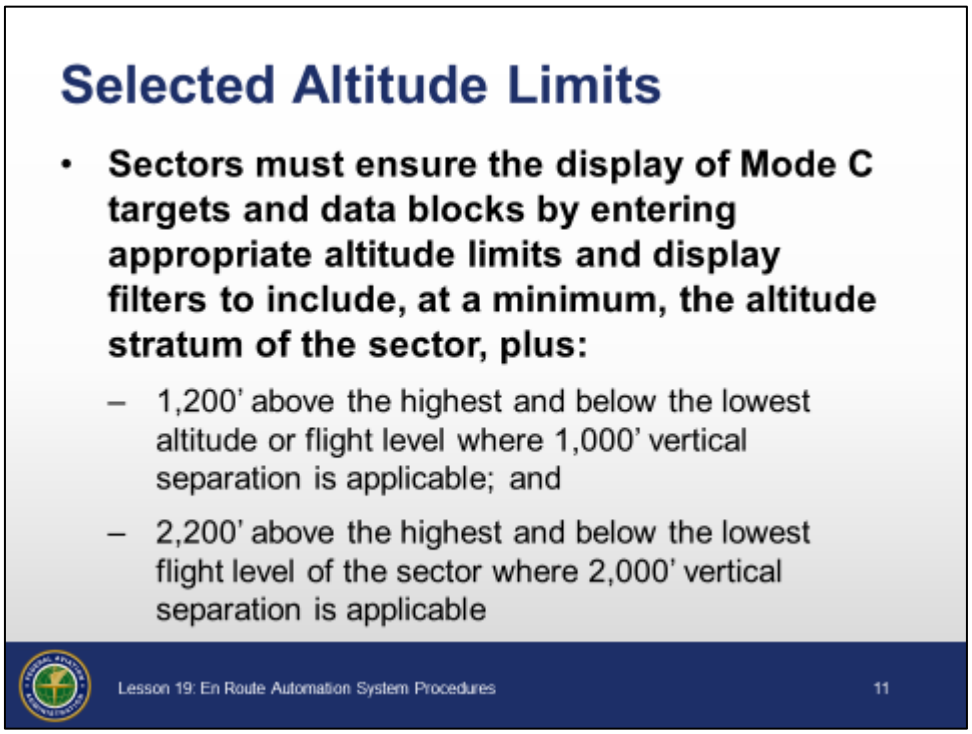
JO 7110.65, par. 5-14-3



⊙ Route information must not be modified outside the controller's area of jurisdiction unless verbally coordinated or specified in a letter of agreement or facility directive

Selected Altitude Limits

JO 7110.65, par. 5-14-5

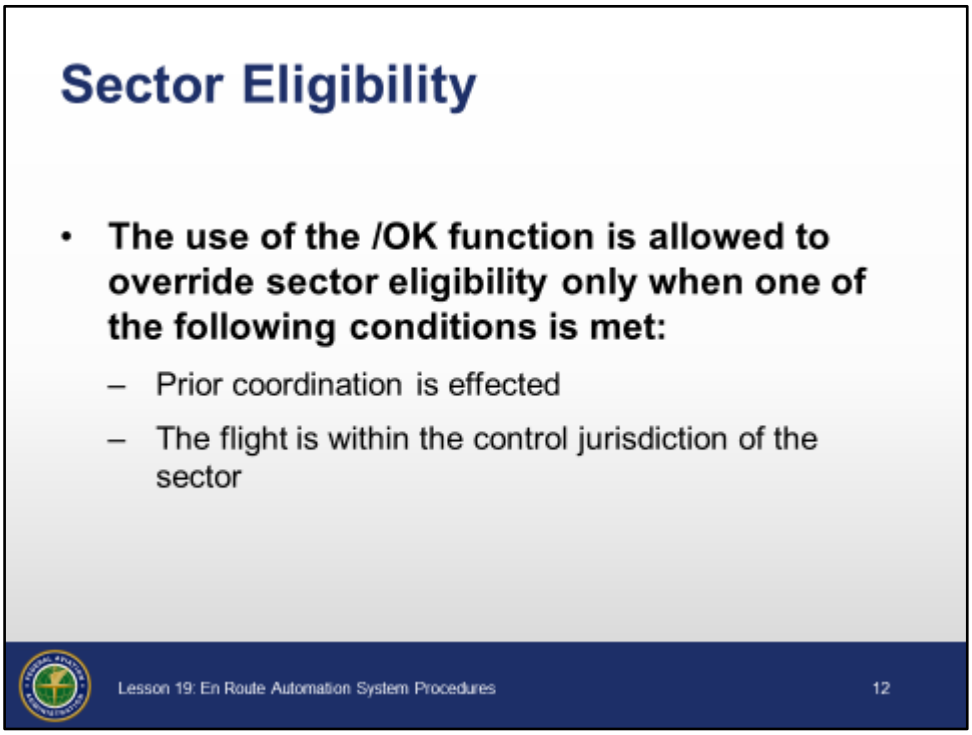


- The display of Mode C targets and limited data blocks is necessary for application of Merging Target Procedures
- Sectors must ensure the display of Mode C targets and data blocks by entering appropriate altitude limits and display filters to include, as a minimum, the altitude stratum of the sector, plus:
  - 1,200' above the highest and below the lowest altitude or flight level of the sector where 1,000' vertical separation is applicable, and
  - 2,200' above the highest and below the lowest flight level of the sector where 2,000' vertical separation is applicable

NOTE: Exceptions to these requirements may be authorized for specific altitudes in certain ARTCC sectors if defined in appropriate facility directives and approved by the En Route and Oceanic Operations Area Director.

Sector Eligibility

JO 7110.65, par. 5-14-6

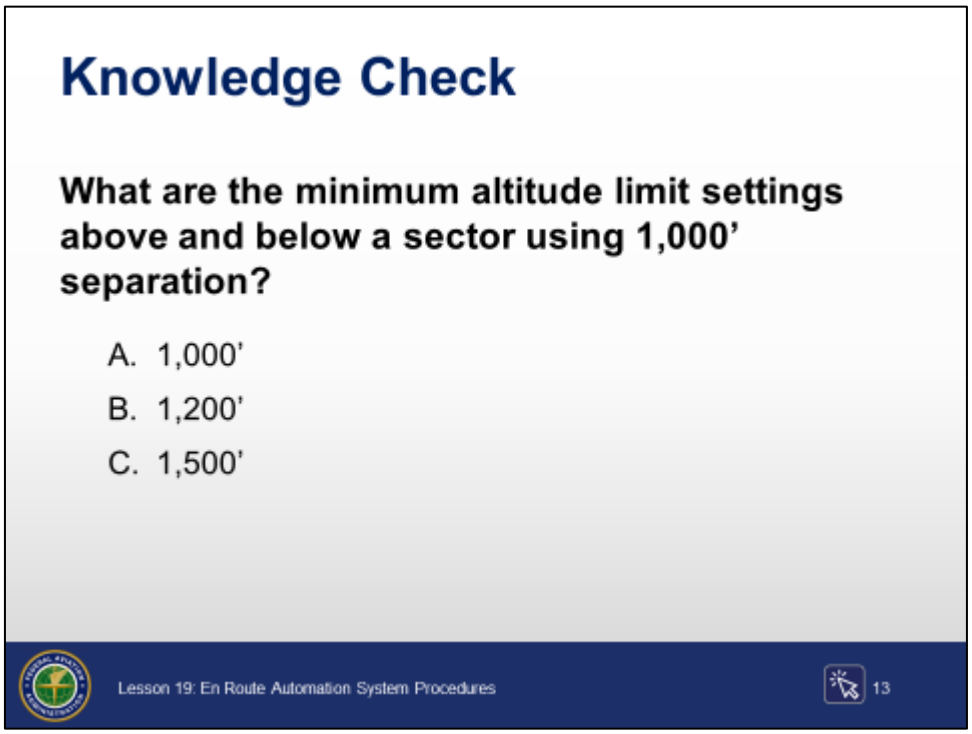


⊙ The use of the /OK function is allowed to override sector eligibility only when one of the following conditions is met:

- Prior coordination is effected
- The flight is within the control jurisdiction of the sector

AUTOMATION PROCEDURES *(CONT'D)*

Knowledge Check

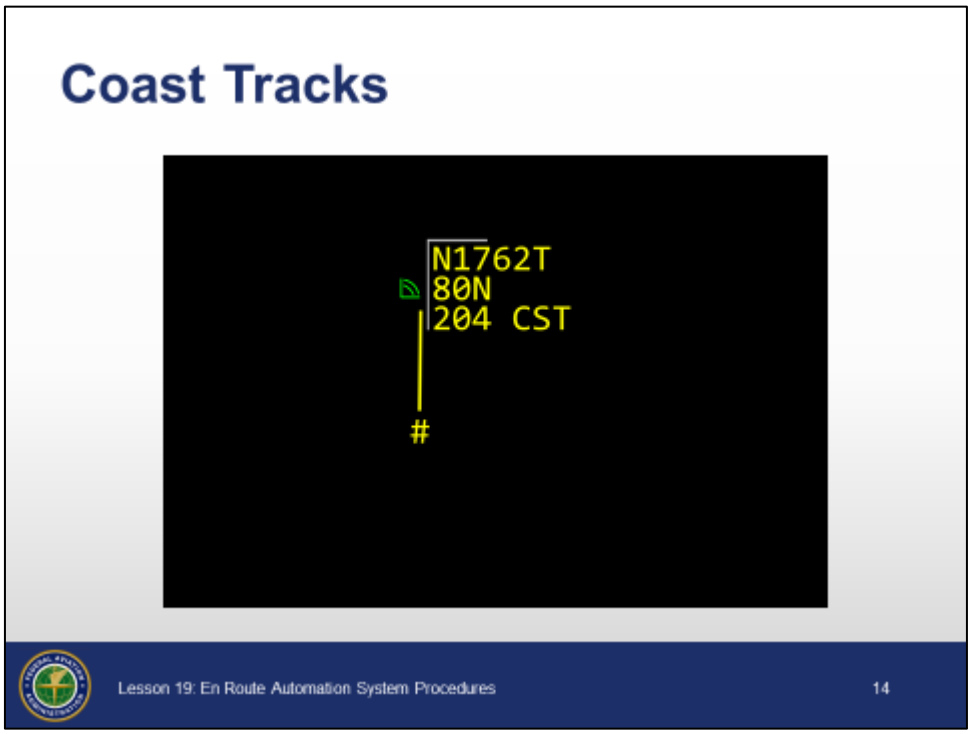


Question: What are the minimum altitude limit settings above and below a sector using 1,000' separation?

AUTOMATION PROCEDURES *(CONT'D)*

Coast Track

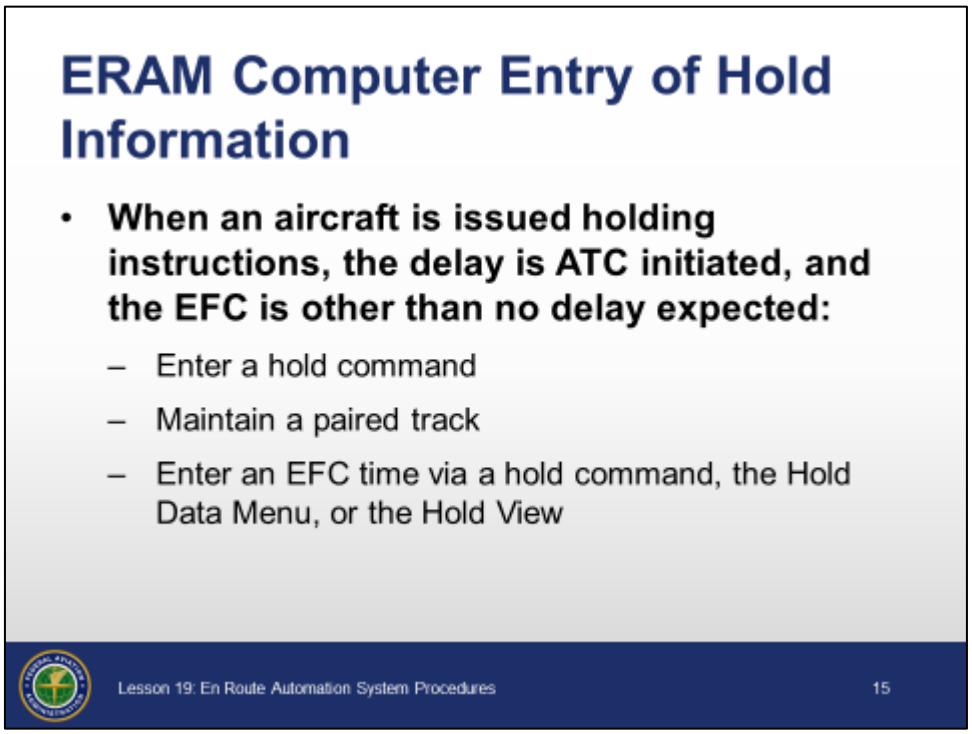
JO 7110.65, pars. 5-14-7, 5-14-8



- Do not use coast tracks in the application of either radar or nonradar separation criteria
- Controller initiated coast tracks
  - Initiate only in Flight Plan Aided Tracking (FLAT) mode
    - Free coast tracking may be used as a reminder that aircraft without corresponding computer-stored flight plan information are under your control
  - Prior to initiating a coast track, ensure that a departure message or progress report corresponding with the aircraft's current position is entered into the computer
  - As soon as practicable after the aircraft is in radar surveillance, initiate action to cause radar tracking to begin on the aircraft

ERAM Computer Entry of Hold Information

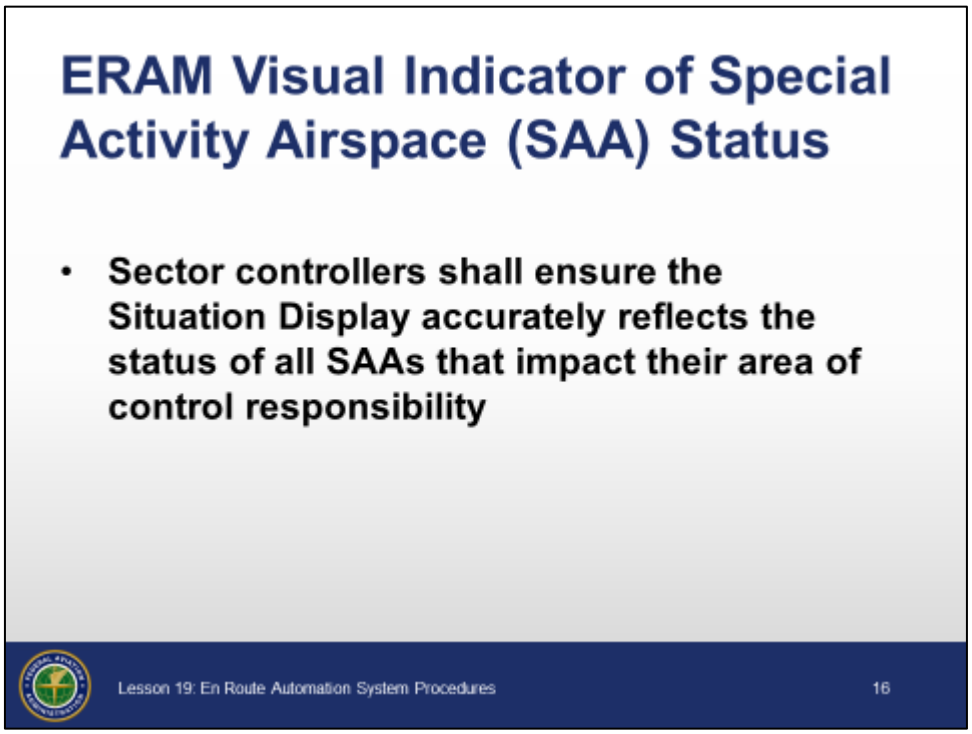
JO 7110.65, par. 5-14-9



- When an aircraft is issued holding instructions, the delay is ATC initiated, and the EFC is other than no delay expected:
  - Enter a hold command
  - Maintain a paired track
  - Enter an EFC time via a hold command, the Hold Data Menu, or the Hold View
  - Enter non-published holding instructions via the hold command or the Hold Data Menu
- Unless otherwise specified in a facility directive, verbally coordinate non-published holding instructions when handing off an aircraft in hold status to another ERAM sector
- An EFC time entered into the Hold Data Menu, Hold View, or the hold command constitutes coordination of the EFC between ERAM sectors

ERAM Visual Indicator of Special Activity Airspace Status

JO 7110.65, par. 5-14-10

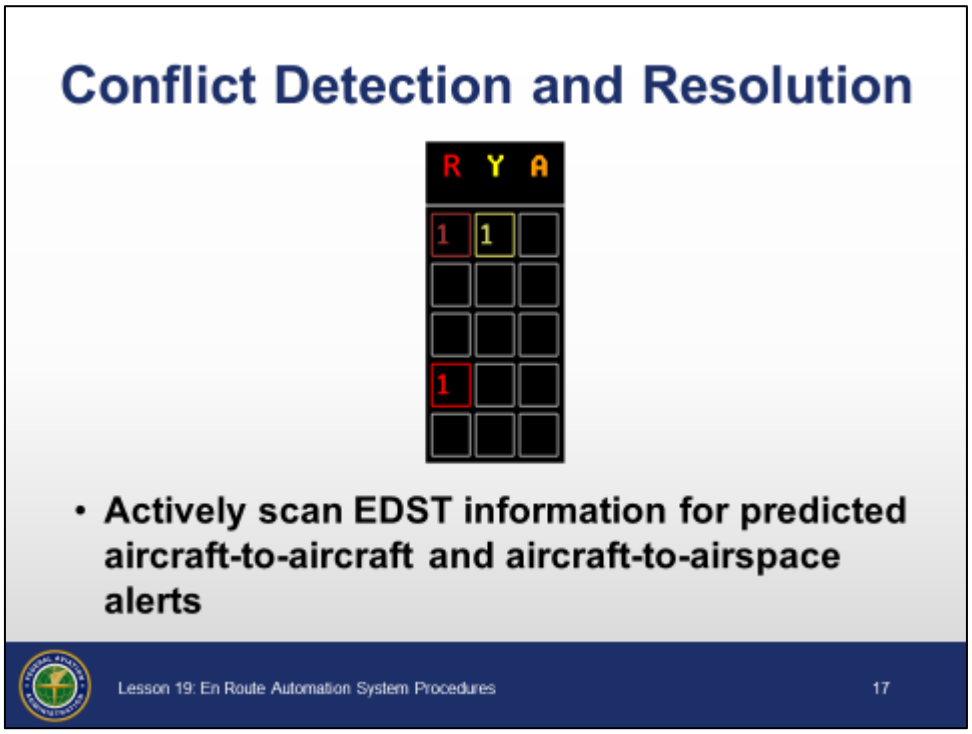


- Sector controllers shall ensure the Situation Display accurately reflects the status of all SAAs that impact their area of control responsibility
- When SAA DOWN is displayed in the Outage view, manually create visual indicators on the Situation Display to reflect changes to airspace status

NOTE: The SAA DOWN message in the Outage view means that SAA status is no longer being updated. The status of each SAA at the time of the failure, whether ON or OFF, will continue to be displayed. Status changes will not be automatically updated on the display until the outage is resolved.

Conflict Detection and Resolution

JO 7110.65, par. 13-1-2



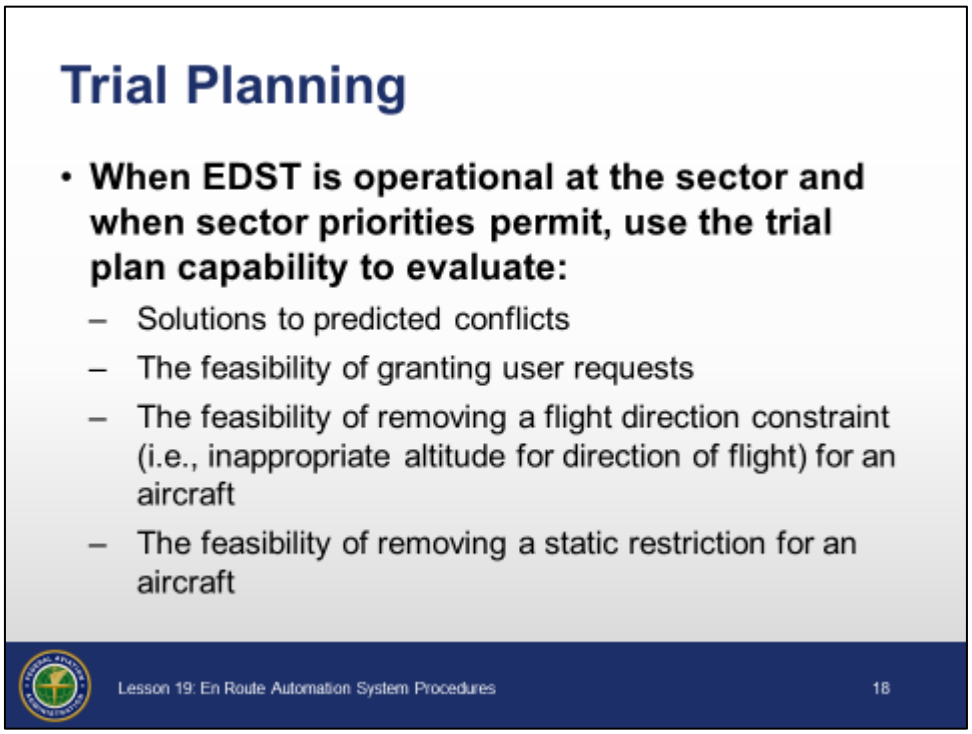
- Actively scan EDST information for predicted aircraft-to-aircraft and aircraft-to-airspace alerts
- When a conflict probe alert is displayed, evaluate the alert and take appropriate action as early as practical, in accordance with duty priorities
- Prioritize the evaluation and resolution of conflict probe alerts to ensure the safe, expeditious, and efficient flow of air traffic

NOTE: Conflict probe alerts are based on standard radar separation. Conflict probe does not account for instances in which greater separation may be needed (e.g., non-standard formations, super aircraft) or where reduced separation is permitted (e.g., 3 mile airspace).

- When a conflict probe alert is displayed and when sector priorities permit, consider the following in determining a solution:
  - Direct routing, altitude changes, removal of a flight direction constraint (i.e., inappropriate altitude for direction of flight), and/or removal of a static restriction for one or more pertinent aircraft
  - Impact on surrounding sector traffic and complexity levels, flight efficiencies, and user preferences
- When the Stop Probe feature is activated for an aircraft, conflict probe for that aircraft shall be restarted before transfer of control, unless otherwise coordinated

Trial Planning

JO 7110.65, par. 13-1-3

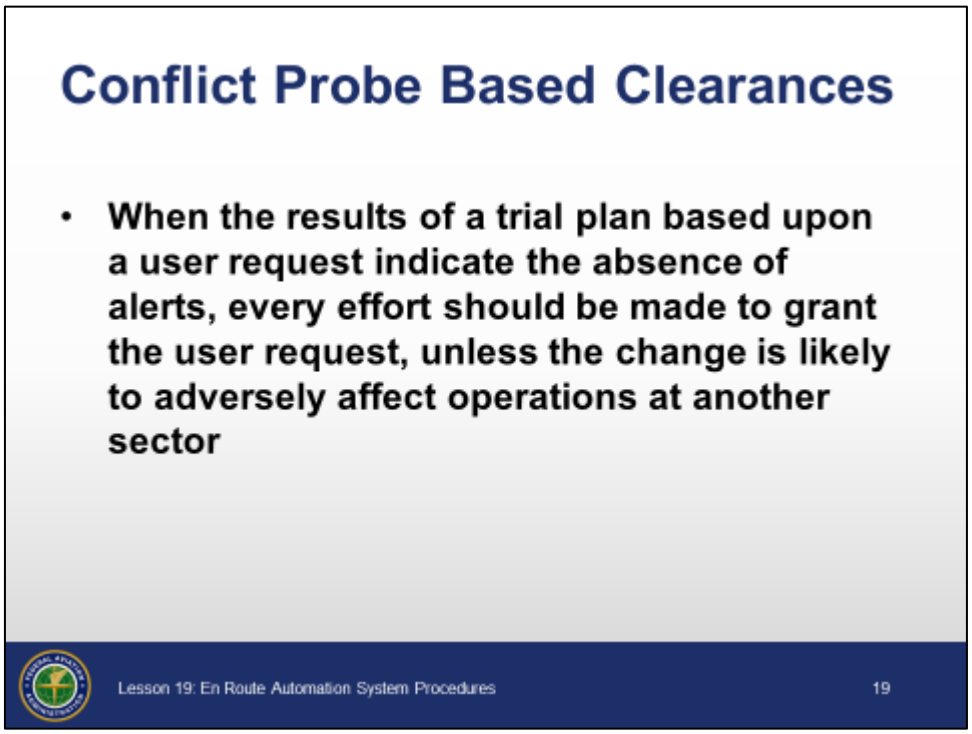


⊙ When the EDST is operational at the sector and when sector priorities permit, use the trial plan capability to evaluate:

- Solutions to predicted conflicts, this includes checking:
  - Altitudes
  - Routes of flight
- The feasibility of granting user requests
- The feasibility of removing a flight direction constraint (i.e., inappropriate altitude for direction of flight) for an aircraft
- The feasibility of removing a static restriction for an aircraft

Conflict Probe Based Clearances

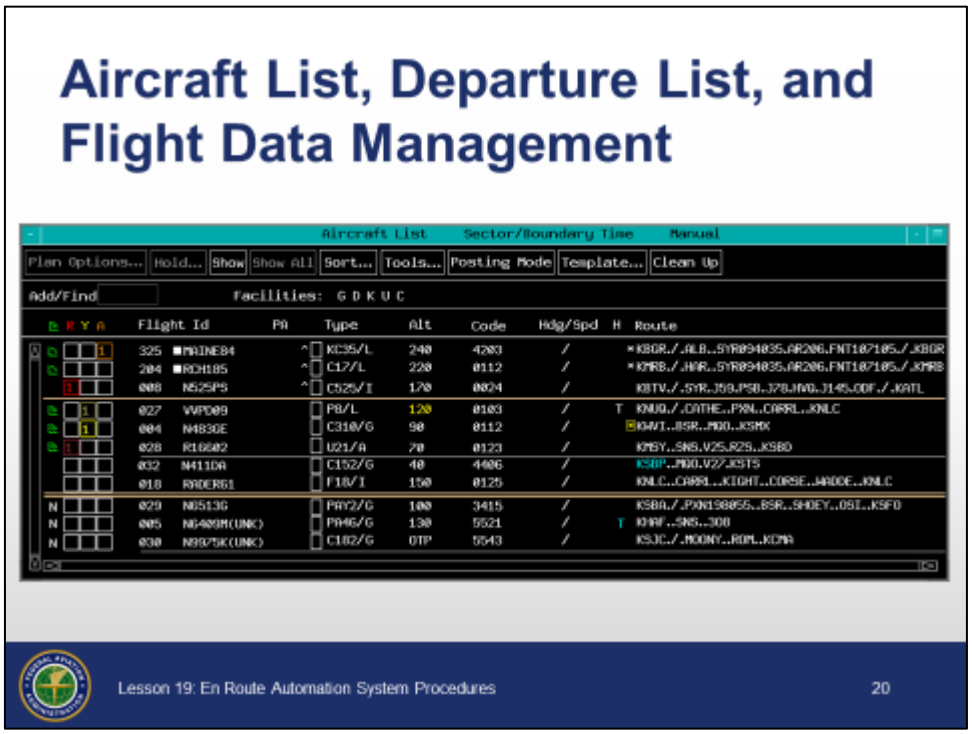
JO 7110.65, par. 13-1-4



- When the results of a trial plan based upon a user request indicate the absence of alerts, every effort should be made to grant the user request, unless the change is likely to adversely affect operations at another sector
- Consider the following:
  - The next sector's workload and traffic flow
  - Any potential weather impact

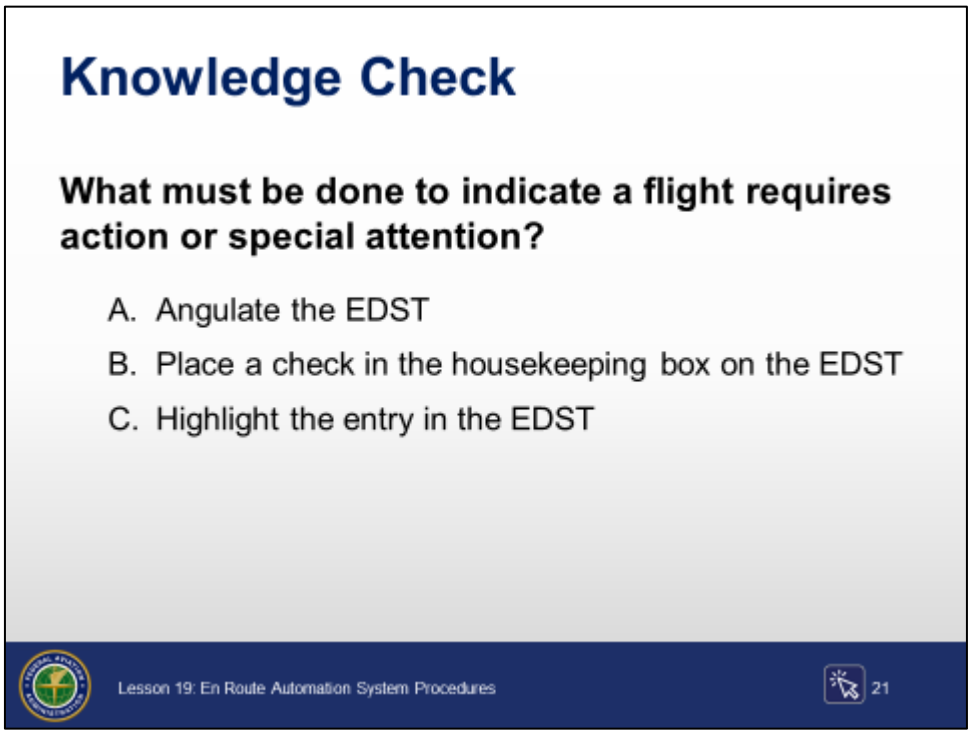
Aircraft List (ACL), Departure List (DL), and Flight Data Management

JO 7110.65, par. 13-1-5



- The ACL must be the sector team's primary source of flight data
- Actively scan EDST to identify automated notifications that require sector team action
- When an ACL or DL entry has a Remarks indication, the Remarks field of the flight plan must be reviewed. Changes to the Remarks field must also be reviewed.
- Highlighting an entry on the ACL or DL must be used to indicate the flight requires an action or special attention
- The Special Posting Area (SPA) should be used to group aircraft that have special significance (e.g., aircraft to be sequenced, air refueling missions, formations)
- Sector teams shall post flight progress strips for any nonradar flights
- Flight progress strip(s) shall be posted for any flight plan not contained in the EAS
- Sector teams shall post any flight progress strip(s) that are deemed necessary for safe or efficient operations. The sector team shall comply with all applicable facility directives to maintain posted flight progress strips.
- Drop Track Delete option shall be used in accordance with facility directives

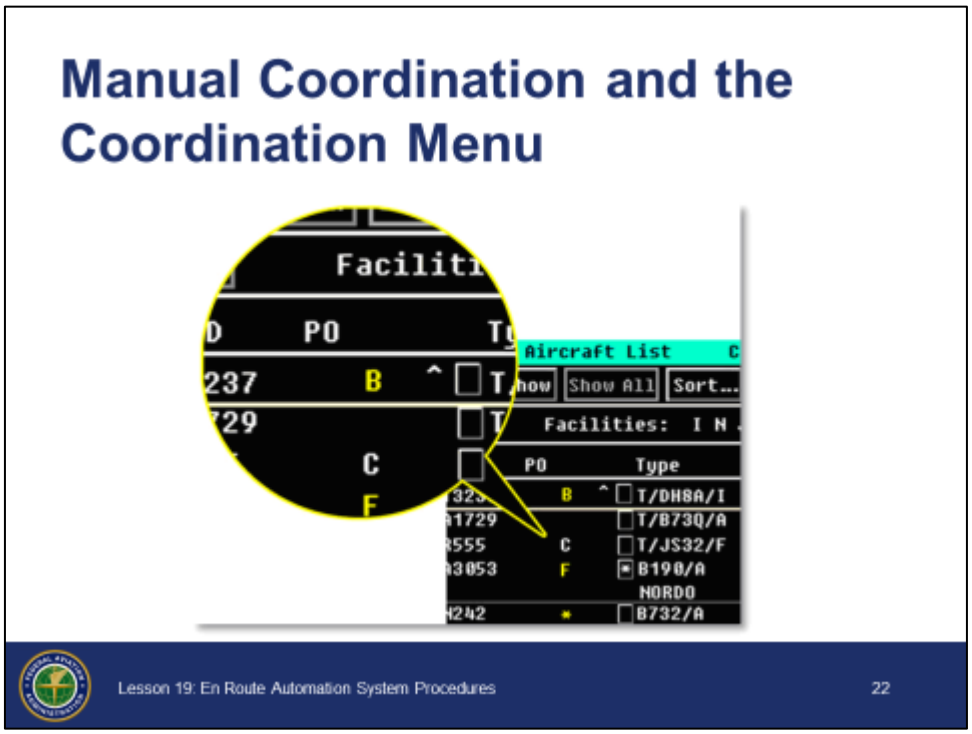
Knowledge Check



Question: What must be done to indicate a flight requires action or special attention?

Manual Coordination and the Coordination Menu

JO 7110.65, par. 13-1-6

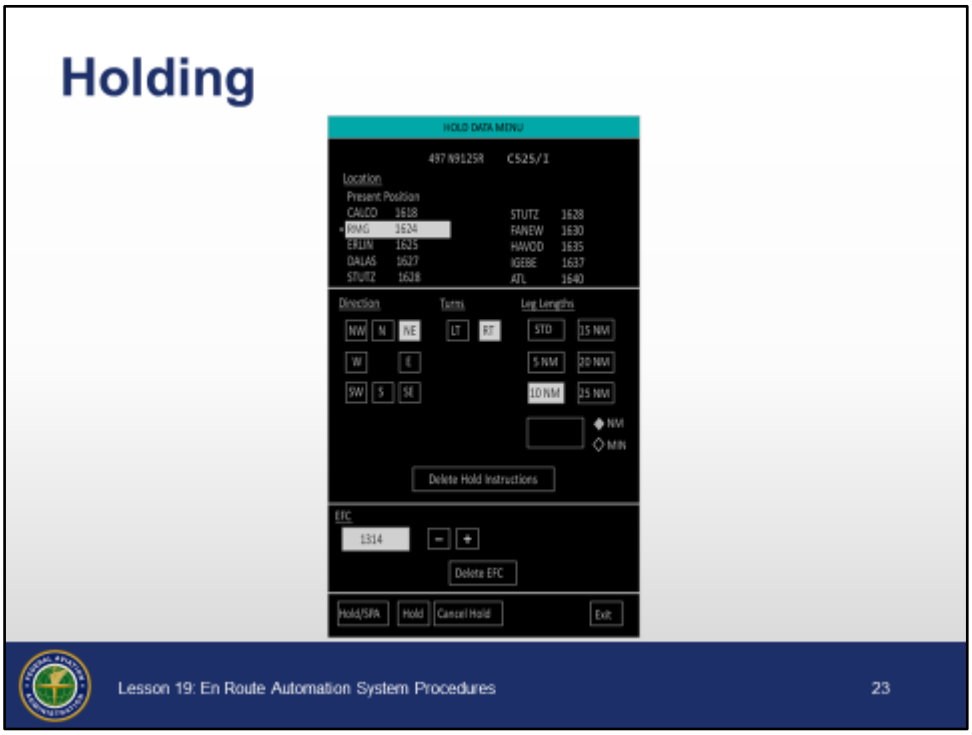


- Where automated coordination with a facility is not available (e.g., an international facility or a VFR tower), use the Coordination Menu or a flight progress strip to annotate manual coordination status, in accordance with facility directives
- When the Coordination Menu is used and the flight plan is subsequently changed, remove the yellow coding from the Coordination Indicator after any appropriate action has been taken

EDST NATIONAL PROCEDURES *(CONT'D)*

Holding

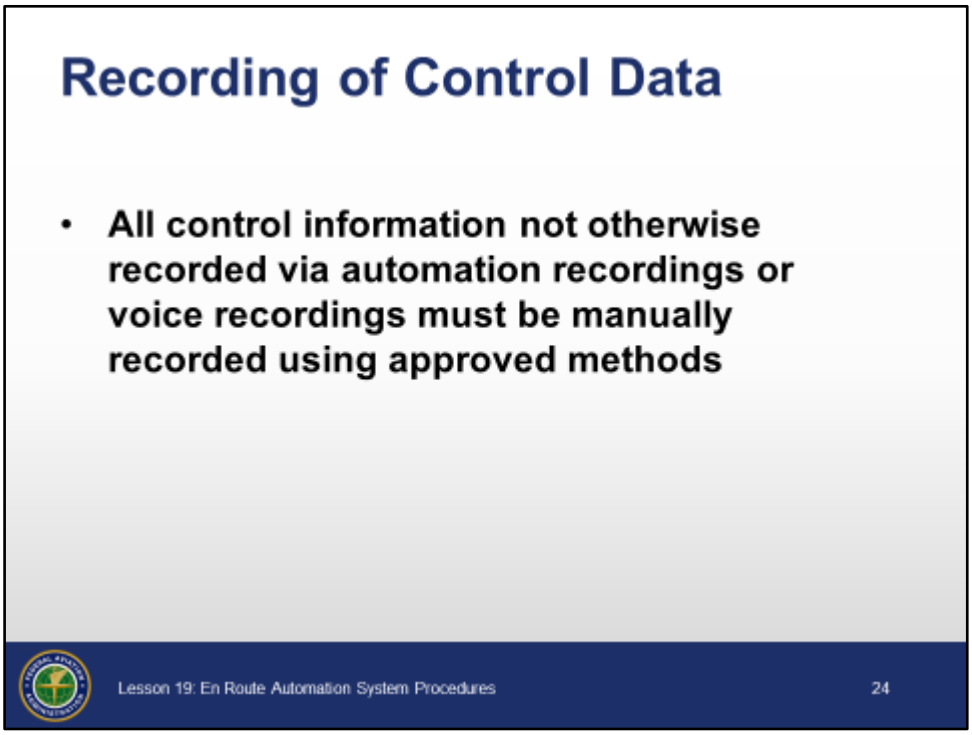
JO 7110.65, par. 13-1-7



- For flights in hold, use the ERAM Hold View, the EDST Hold Data Menu, a flight progress strip, or a facility approved worksheet to annotate holding instructions in accordance with facility directives

Recording of Control Data

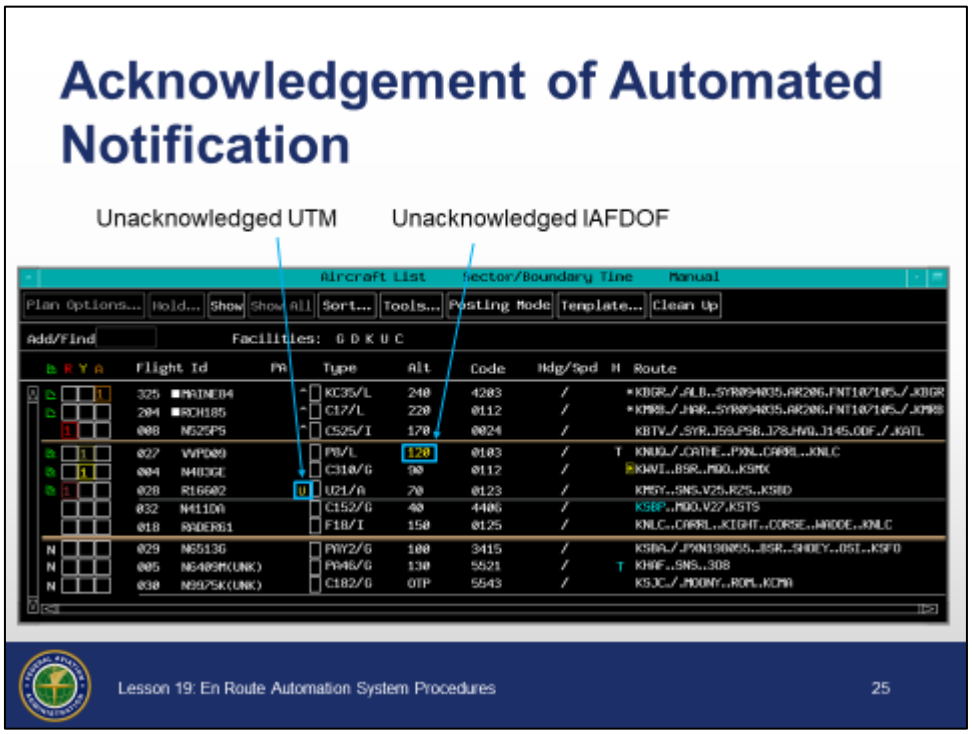
JO 7110.65, par. 13-1-8



- All control information not otherwise recorded via automation recordings or voice recordings must be manually recorded using approved methods
- When a verbal point out has been approved, remove the yellow color coding on the ACL
- When the ACL or DL Free Text Area is used to enter control information, authorized abbreviations must be used. You may use:
  - Authorized abbreviations and symbols shown in **Appendix A**, Miscellaneous Abbreviations located at the end of this lesson
  - Plain language markings when it will aid in understanding information
  - Locally approved abbreviations
- When the ACL or DL Free Text Area is used to enter control information, the Free Text Area must remain open and visible
  - When no longer relevant, the information entered into the Free Text Area must be updated or deleted
- Control information entered in the Free Text Area must be used for reference purposes only

Acknowledgement of Automated Notification

JO 7110.65, par. 13-1-9



- The EDST Inappropriate Altitude for Direction of Flight (IAFDOF) feature must be used in the automatic mode, unless otherwise authorized in a facility directive
- Completion of any required coordination for IAFDOF must be acknowledged on the ACL by removing the IAFDOF coding
- Completion of appropriate coordination for an Unsuccessful Transmission Message (UTM) must be acknowledged on the ACL by removing the UTM coding
- Issuance of the Expect Departure Clearance Time (EDCT) to the pilot or other control facility must be acknowledged on the DL by removing the EDCT coding
- IAFDOF, UTM, or EDCT coding must be acknowledged only after the appropriate action has been completed

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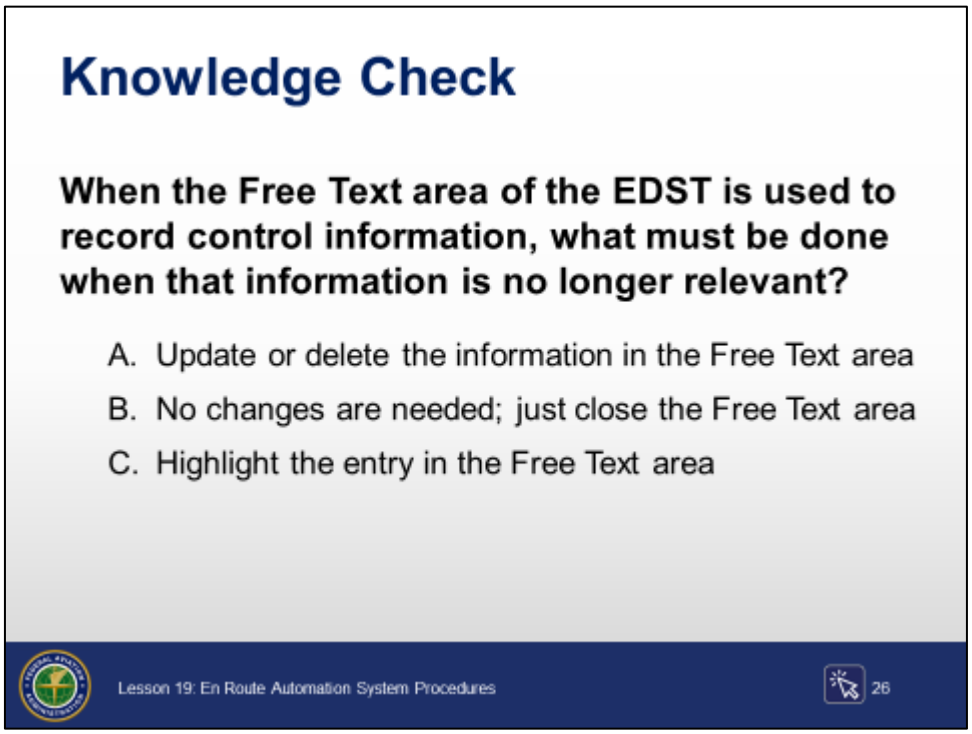
EDST NATIONAL PROCEDURES *(CONT'D)*

Acknowledgement of Automated Notification (Cont'd)

- ⊙ The first sector which displays Embedded Route Text (ERT) coding must issue and send and/or acknowledge the route prior to initiating a handoff unless verbally coordinated or as specified in facility directives
  - Do not send and/or acknowledge ERT coding unless the sector has track control for the flight or it has been otherwise coordinated
- ⊙ Route Action Notifications (RAN), such as ATC preferred routes or route processing errors must be amended at the first control position that displays the RAN unless verbally coordinated or as specified in facility directives
  - Do not remove RAN coding unless the sector has track control or it has been otherwise coordinated

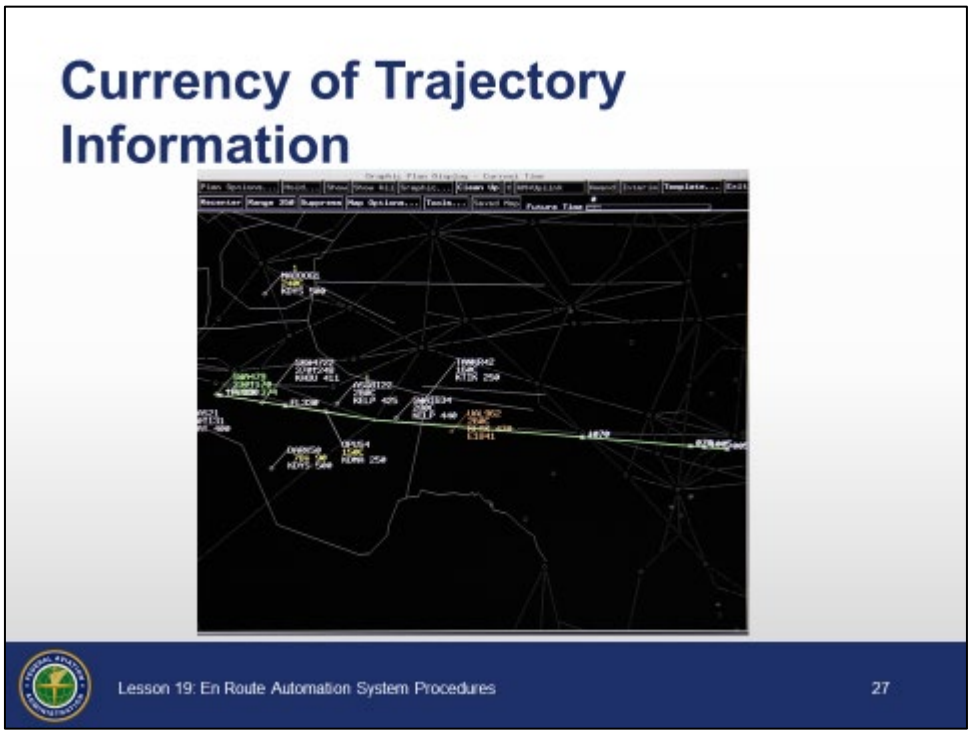
Knowledge Check



Question: When the Free Text area of the EDST is used to record control information, what must be done when that information is no longer relevant?

Currency of Trajectory Information

JO 7110.65, par. 13-1-10



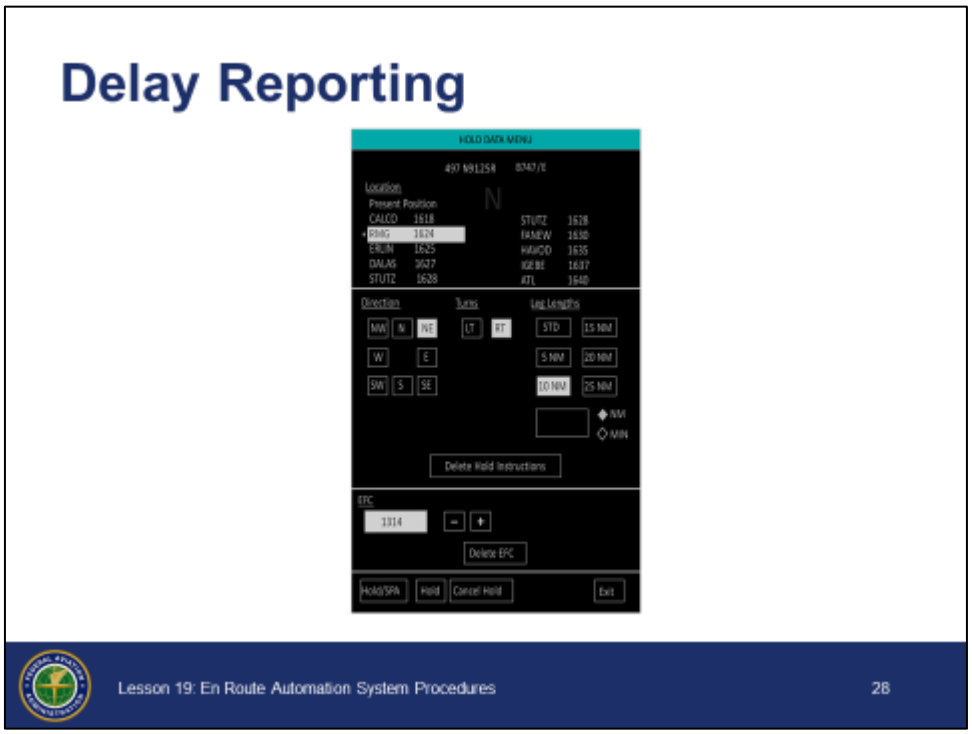
- The sector team shall perform automation entries in a timely manner
  - Conflict probe accuracy requires timely updates of data used to model each flight's trajectory. If this data is not current, the aircraft entries and notification of probe results for surrounding sectors and facilities, as well as the subject sector, may be misleading.
  - Data used to model an individual aircraft's trajectory includes route of flight, assigned and interim altitudes, application or removal of an adapted restriction for that flight, and aircraft type
- An exception to the requirement to enter or update interim altitudes may be authorized for certain ARTCC sectors if explicitly defined in facility directives

NOTE: Conflict probe accuracy in assigning alert notification is dependent upon the entry or update of a flight's interim altitude.

EDST NATIONAL PROCEDURES *(CONT'D)*

Delay Reporting

JO 7110.65, par. 13-1-11



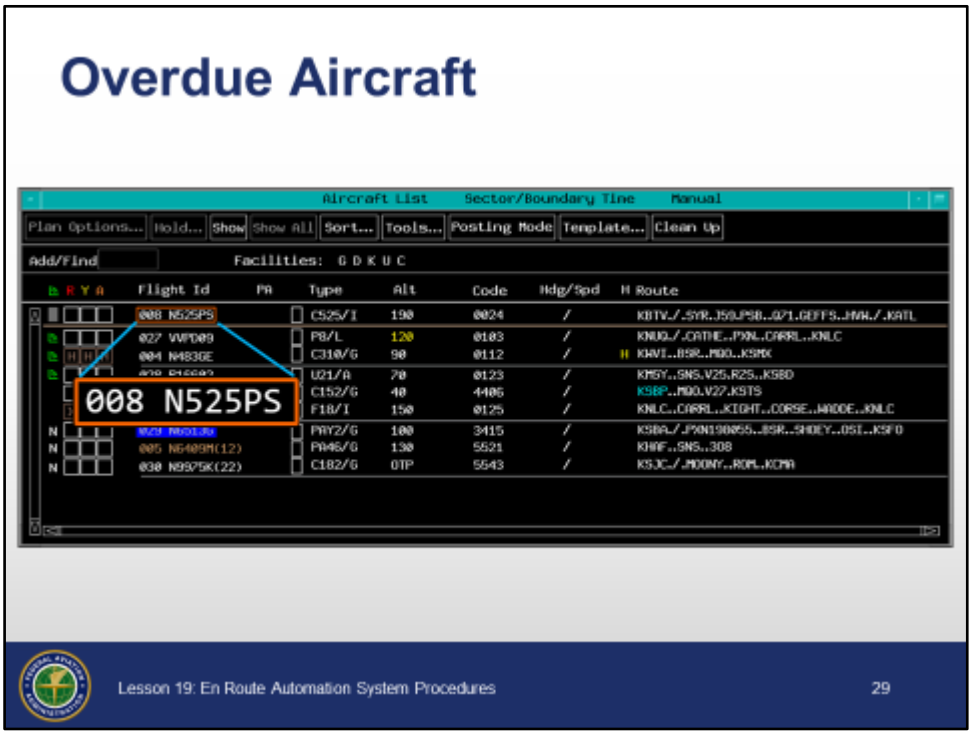
- Adhere to all applicable delay reporting directives
- Delay information must be recorded
  - Delay information may be automatically recorded via use of:
    - EDST Hold Data menu
    - Hold view
  - Manually on flight progress strips or facility-approved worksheets, in accordance with the facility-defined standard
- When using the EDST Hold Data menu to automatically record delay information, the hold annotations shall be removed when the aircraft is cleared from holding

NOTE: When using the Hold Data menu or Hold view, delays are automatically recorded when the aircraft is cleared out of the hold.

EDST NATIONAL PROCEDURES *(CONT'D)*

Overdue Aircraft

JO 7110.65, par. 13-1-12

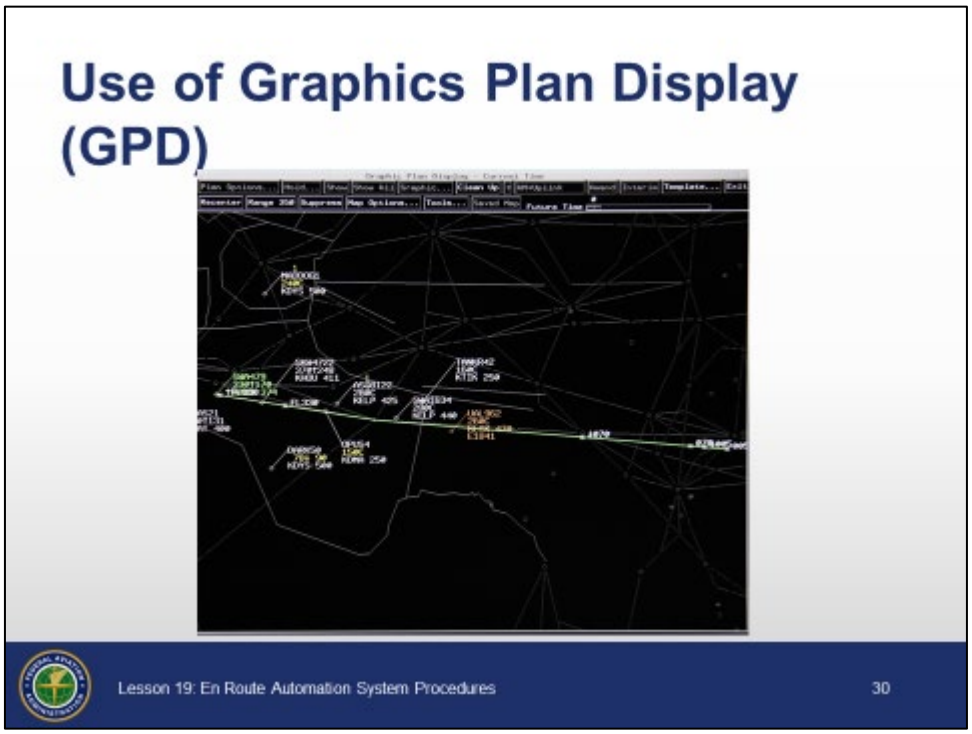


- EDST overdue aircraft notification is based on radar track data
  - Updating an aircraft's route of fight will remove the overdue aircraft notification
- If needed, upon receipt of the overdue aircraft notification, notify the supervisor/CIC

EDST NATIONAL PROCEDURES *(CONT'D)*

Use of Graphics Plan Display (GPD)

JO 7110.65, par. 13-1-13

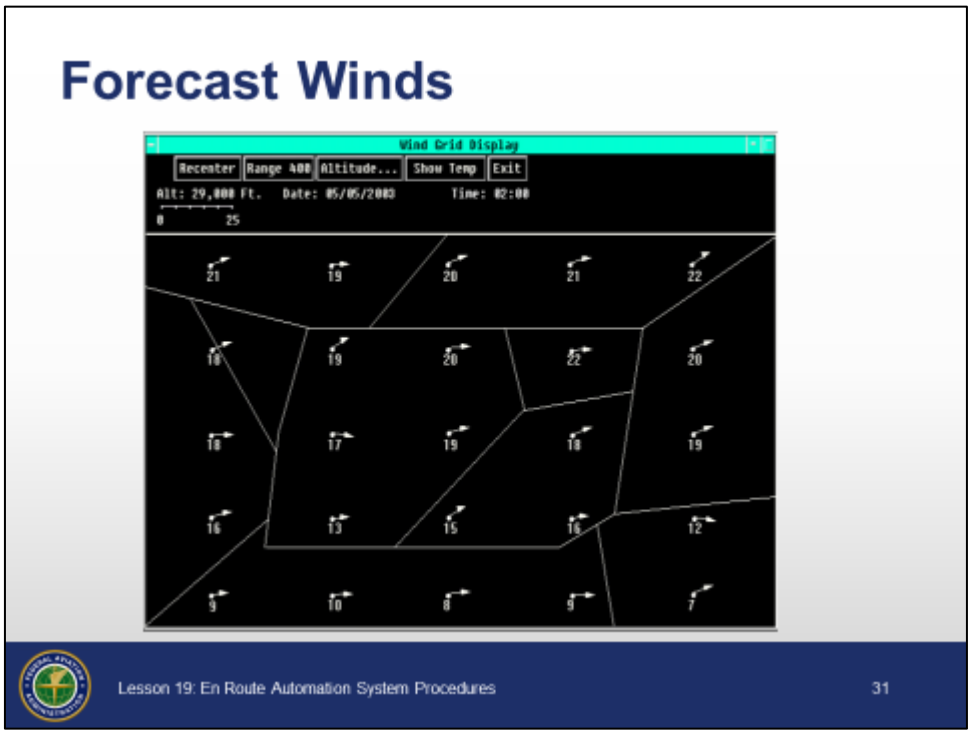


- Graphic depictions of flight trajectories may be used only to aid in situational awareness and strategic planning, Do not use:
  - Trajectory-based positions as a substitute for radar track position
  - Trajectory-based altitude in lieu of Mode C for altitude confirmation
  - GPD for radar identification, position information, transfer of radar identification, radar separation, correlation, or point outs

EDST NATIONAL PROCEDURES *(CONT'D)*

Forecast Winds

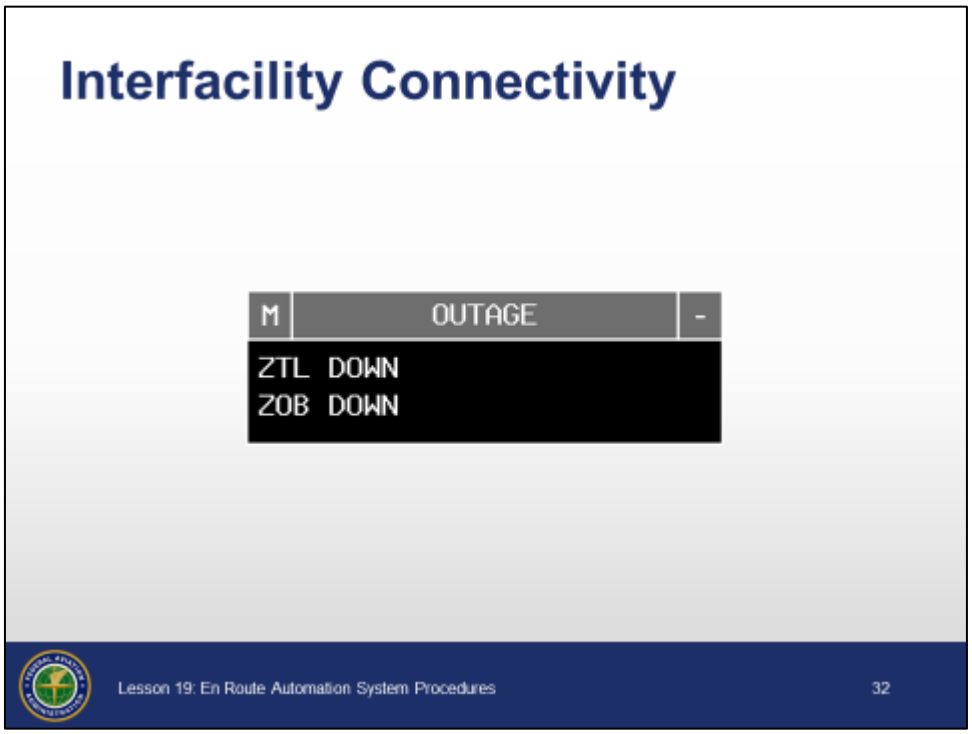
JO 7110.65, par. 13-1-14



- In the event that current forecast wind data are not available, continue use of conflict probe and trial planning, with appropriate recognition that alert and trajectory data may be affected

Interfacility Connectivity

JO 7110.65, par. 13-1-15



- In the event of a loss of connectivity to an adjacent ERAM facility, continue use of EDST with appropriate recognition that alert data may be affected

EDST NATIONAL PROCEDURES *(CONT'D)*

Surveillance and Flight Data Outages

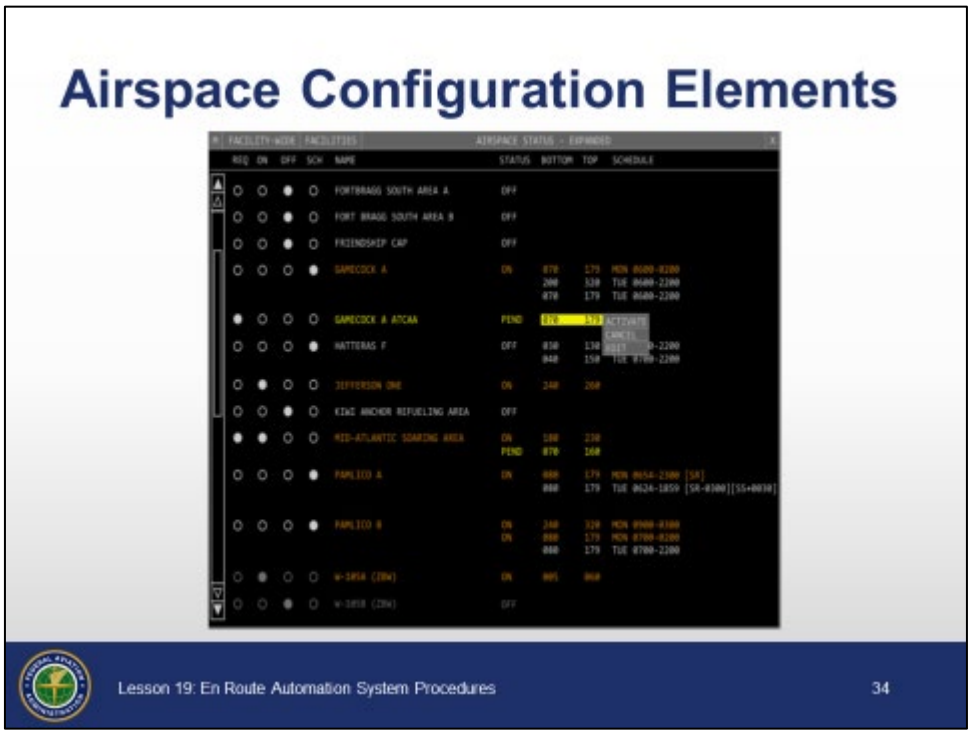
JO 7110.65, par. 13-1-16

- In the event of a surveillance or flight data outage, electronic flight data may be used to support situational awareness while the facility transitions to alternate automation capabilities or nonradar procedures

EDST NATIONAL PROCEDURES *(CONT'D)*

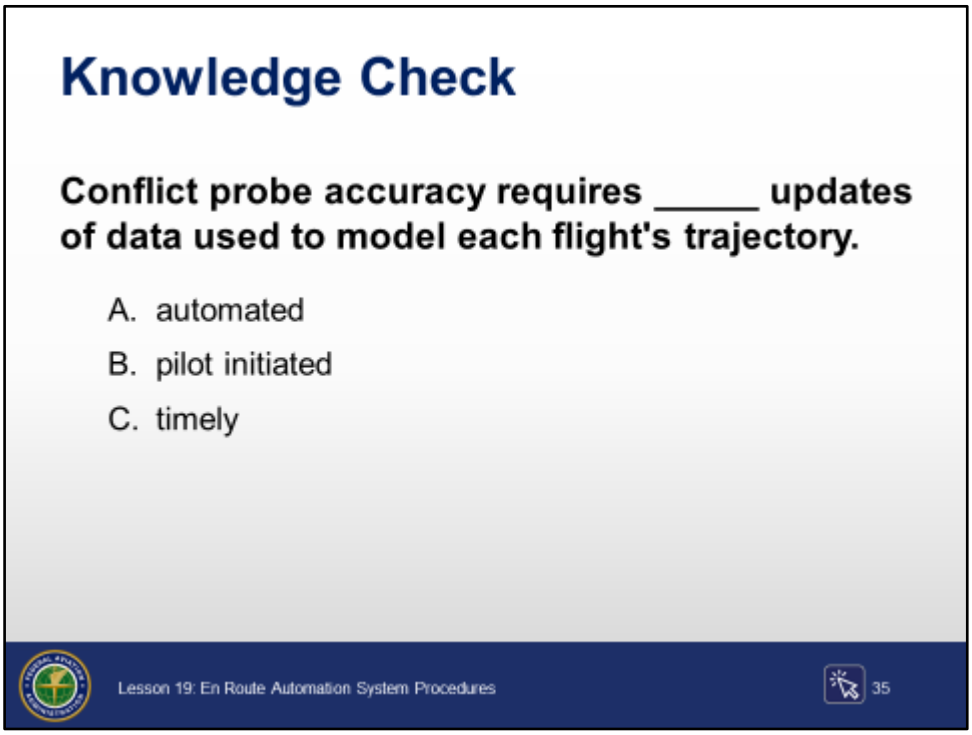
Airspace Configuration Elements

JO 7110.65, par. 13-1-17



- Airspace configuration elements are:
  - Special Activity Airspace (SAA)
  - Airport Stream Filters (ASF)
  - Adapted Restrictions
- Where assigned as a sector responsibility by facility directive, the sector team shall update airspace configuration elements to reflect current status
  - Unless otherwise covered in an LOA or facility directive, activating or scheduling the SAA in the Airspace Status View does not constitute coordination for activation of airspace
- For airspace configuration elements designated as a sector responsibility, notify the supervisor/CIC when the status of an airspace configuration element has been modified

Knowledge Check

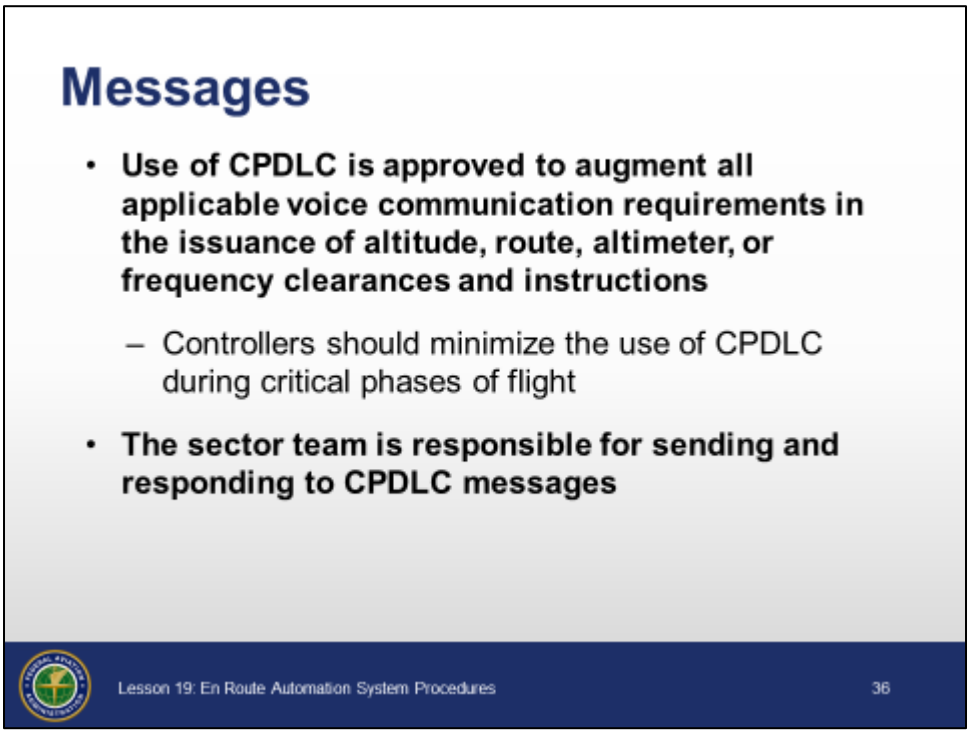


Question: Conflict probe accuracy requires _____ updates of data used to model each flight's trajectory.

CPDLC NATIONAL PROCEDURES

Messages

JO 7110.125, sec. 8

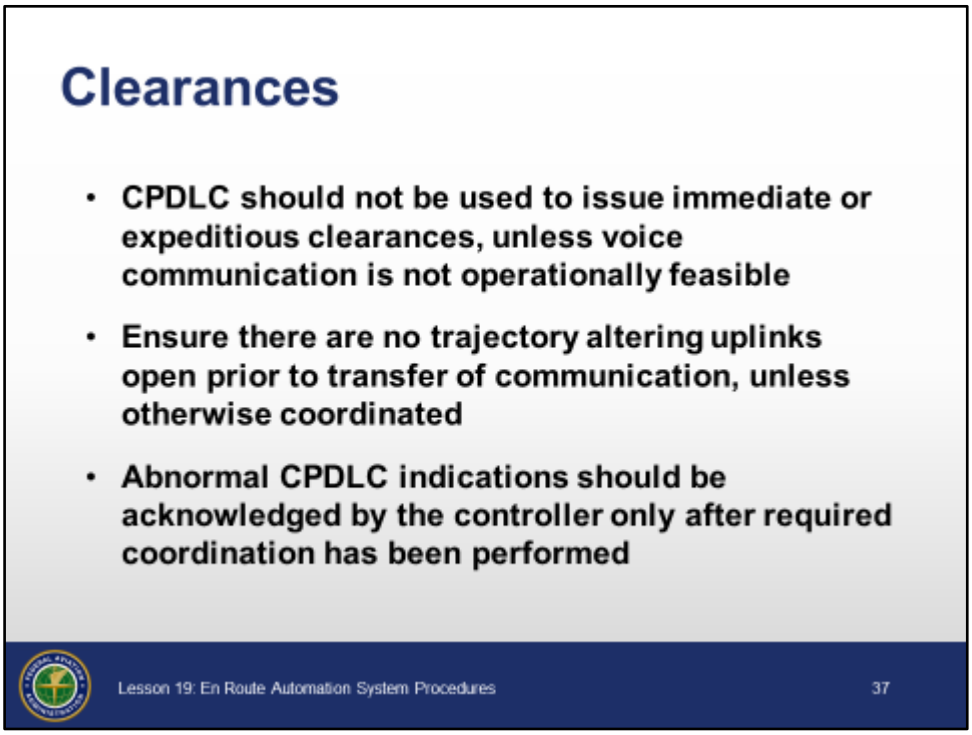


- Use of CPDLC is approved to augment all applicable voice communication requirements in the issuance of altitude, route, altimeter, or frequency clearances and instructions
  - Controllers should minimize the use of CPDLC during critical phases of flight
- The sector team is responsible for sending and responding to CPDLC messages

CPDLC NATIONAL PROCEDURES *(CONT'D)*

Clearances

JO 7110.125, sec. 8



- CPDLC should not be used to issue immediate or expeditious clearances, unless voice communication is not operationally feasible
- Ensure there are no trajectory altering uplinks open prior to transfer of communication, unless otherwise coordinated
- Abnormal CPDLC indications should be acknowledged by the controller only after required coordination has been performed

Initial Contact Mismatch

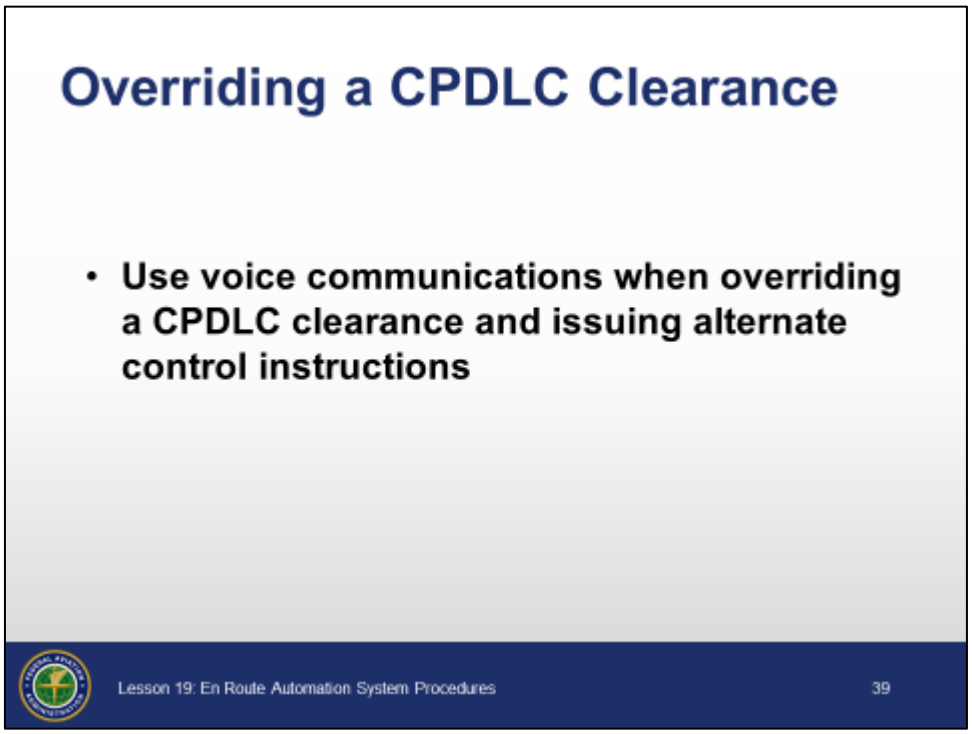
JO 7110.125, sec. 8

- When an Initial Contact (IC) Mismatch or Confirm Assigned Altitude (CAA) downlink Timeout indicator is displayed in the Full Data Block (FDB) and Aircraft List (ACL), the controller who has the aircraft on their voice frequency must:
  - Use voice communication to verify the assigned altitude of the aircraft
  - Acknowledge the IC Mismatch or CAA Timeout indicator

NOTE: All sectors in the controlling ARTCC displaying an FDB will show the IC Mismatch or CAA Timeout indicator.

Overriding a CPDLC Clearance

JO 7110.125, sec. 8



- Use voice communications when overriding a CPDLC clearance and issuing alternate control instructions

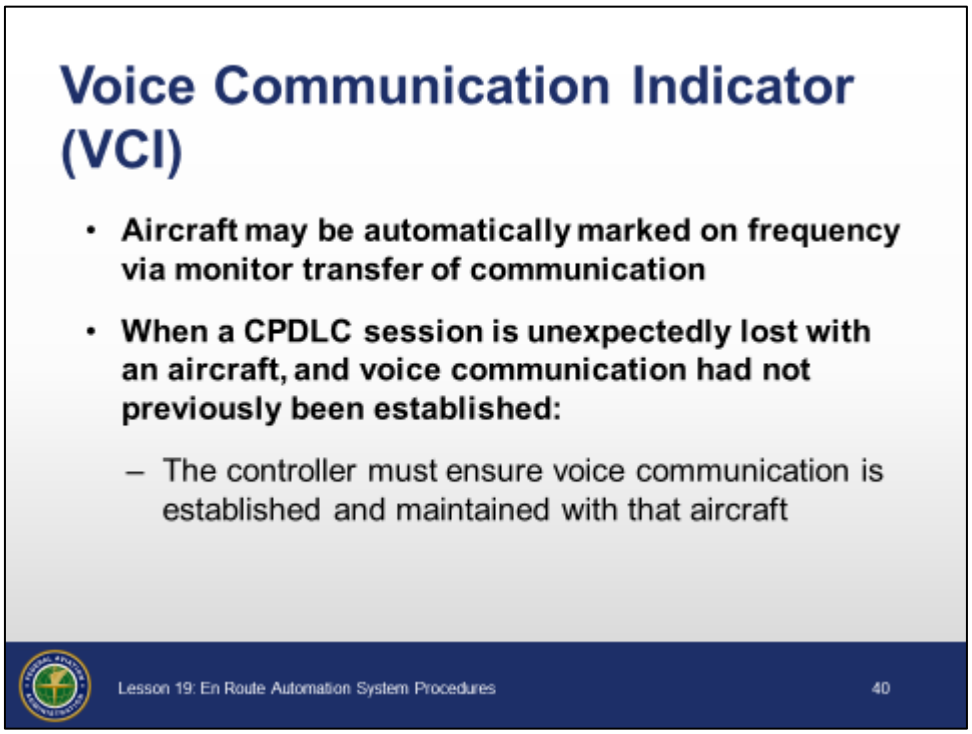
NOTE: Controllers should be aware that the CPDLC clearance being overridden may not have been received on the flight deck at the time of the voice communication.

- Controllers may cancel an open uplink only after ensuring the pilot has been issued, via voice communication, the correct ATC clearance

NOTE: Cancelling an uplink only removes the uplink from the CPDLC ground system. Controllers should instruct the pilot to close the uplink.

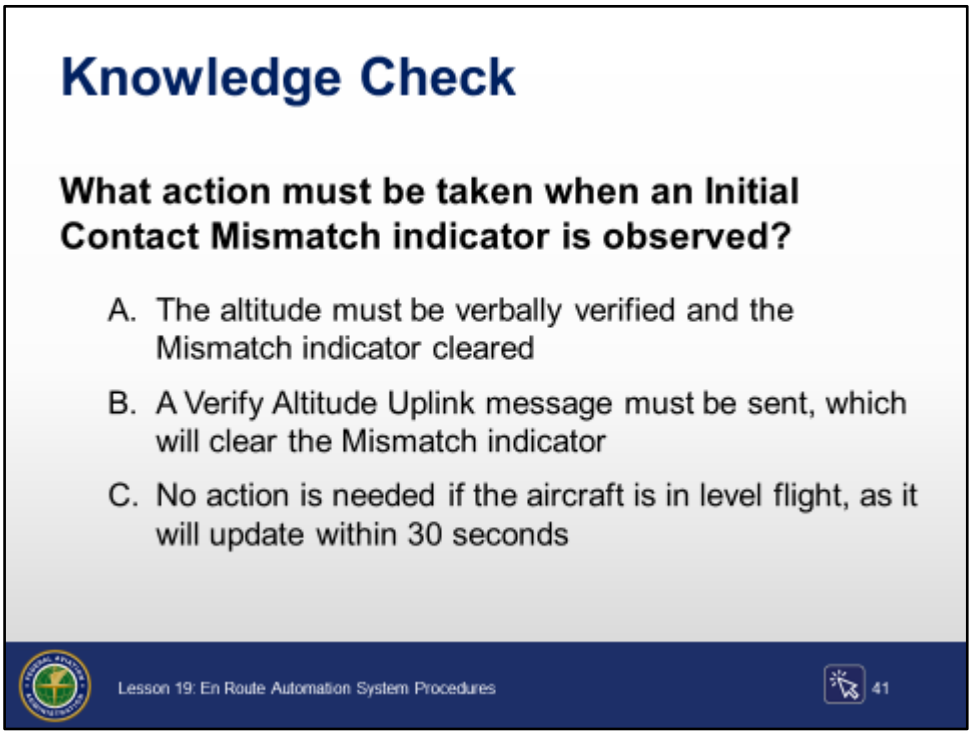
Voice Communication Indicator

JO 7110.125, sec. 8



- Aircraft may be automatically marked on frequency via monitor transfer of communication
- When a CPDLC session is unexpectedly lost with an aircraft, and voice communication had not previously been established:
  - You must ensure voice communication is established and maintained with that aircraft

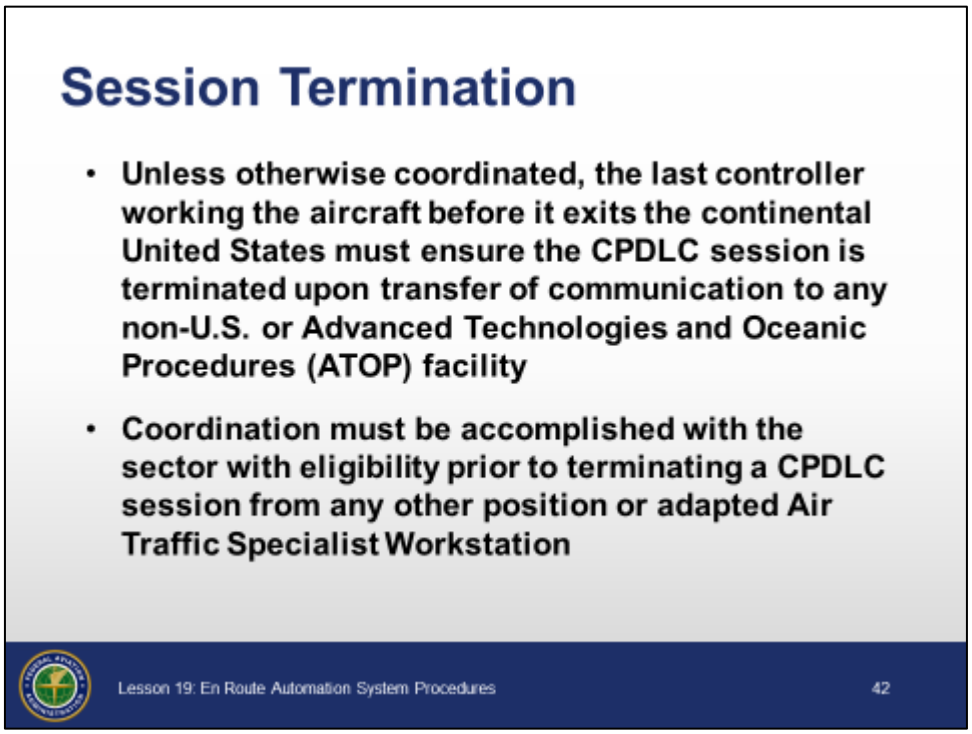
Knowledge Check



Question: What action must be taken when an Initial Contact Mismatch indicator is observed?

Session Termination

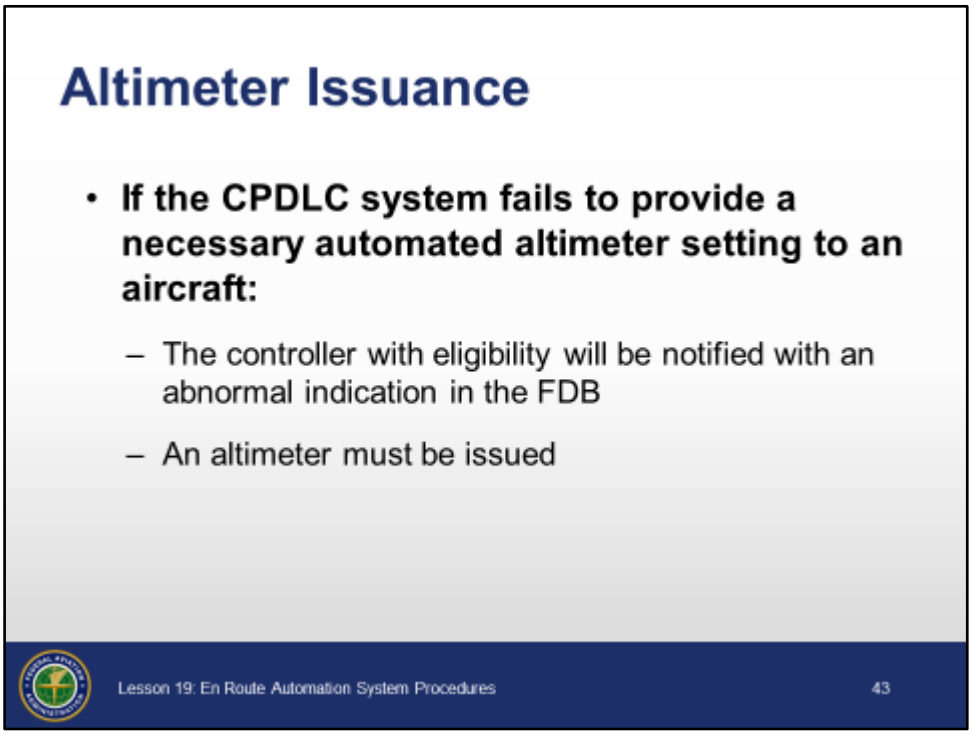
JO 7110.125, sec. 8



- Unless otherwise coordinated, the last controller working the aircraft before it exits the continental United States must ensure the CPDLC session is terminated upon transfer of communication to any non-U.S. or Advanced Technologies and Oceanic Procedures (ATOP) facility
- Coordination must be accomplished with the sector with eligibility prior to terminating a CPDLC session from any other position or adapted Air Traffic Specialist Workstation

Altimeter Issuance

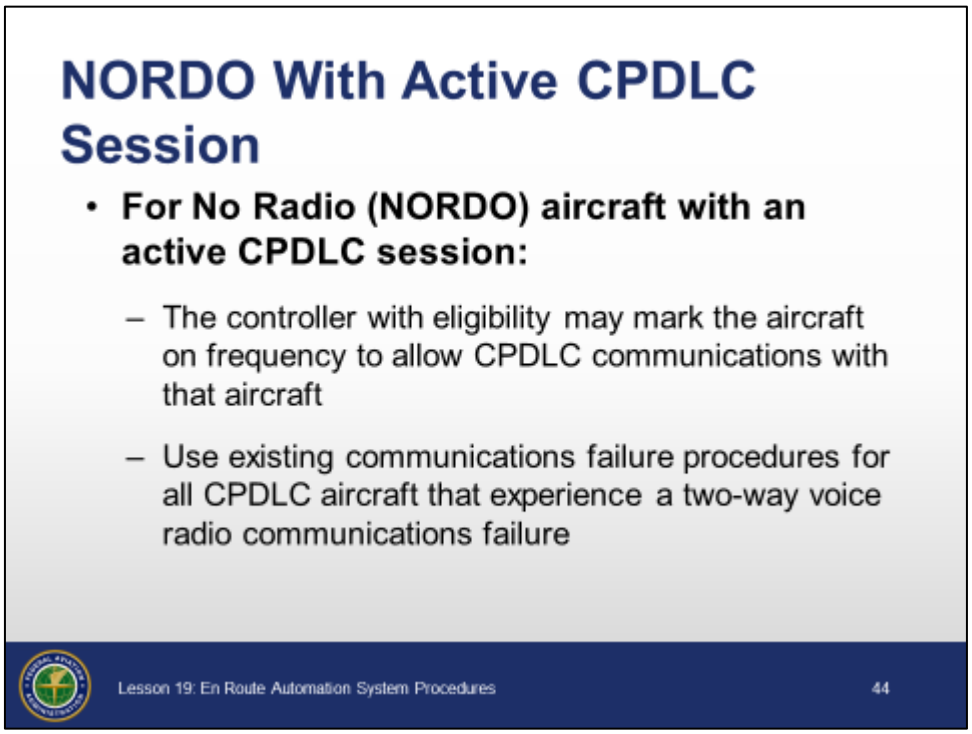
JO 7110.125, sec. 8



- If the CPDLC system fails to provide a necessary automated altimeter setting to an aircraft:
  - The controller with eligibility will be notified with an abnormal indication in the FDB
  - An altimeter must be issued

NORDO With Active CPDLC Session

JO 7110.65, sec. 8



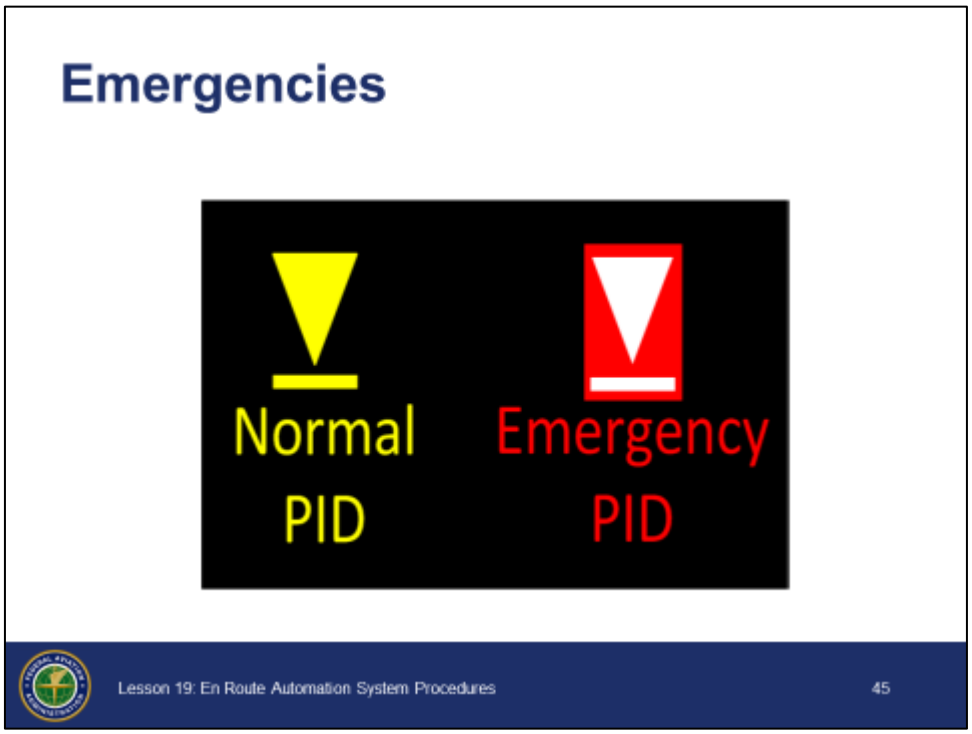
⊙ For No Radio (NORDO) aircraft with an active CPDLC session:

- The controller with eligibility may mark the aircraft on frequency to allow CPDLC communications with that aircraft
- Use existing communications failure procedures for all CPDLC aircraft that experience a two-way voice radio communications failure

CPDLC NATIONAL PROCEDURES *(CONT'D)*

Emergencies

JO 7110.125, sec. 8

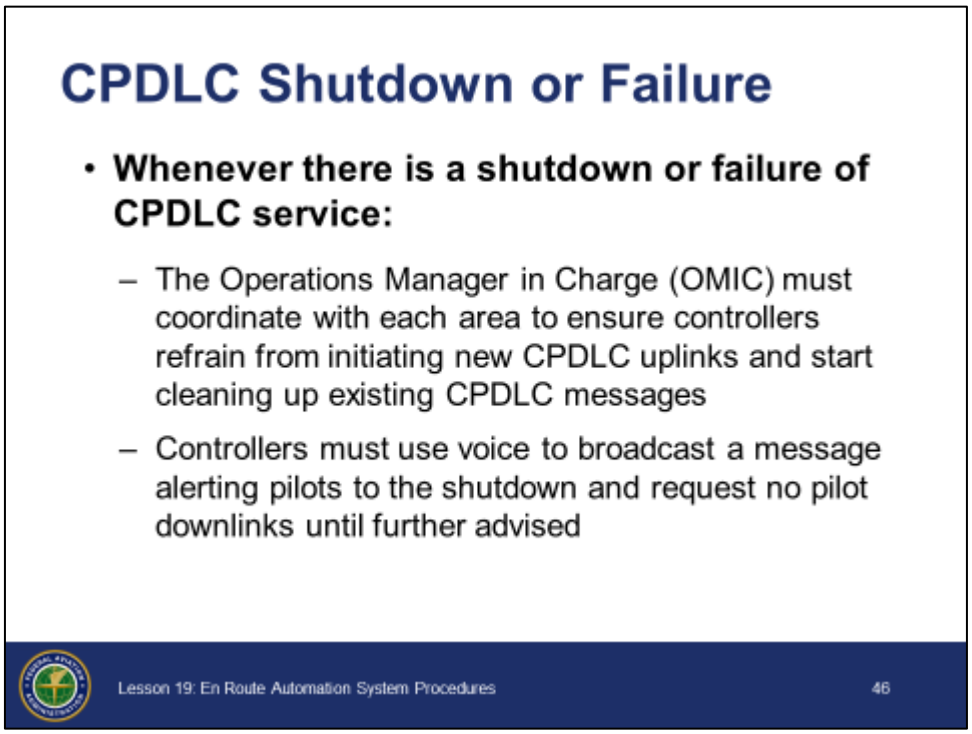


- In the event of receipt of an Emergency Pilot Initiated Downlink:
  - Provide emergency services and assistance as required

CPDLC NATIONAL PROCEDURES *(CONT'D)*

CPDLC Shutdown or Failure

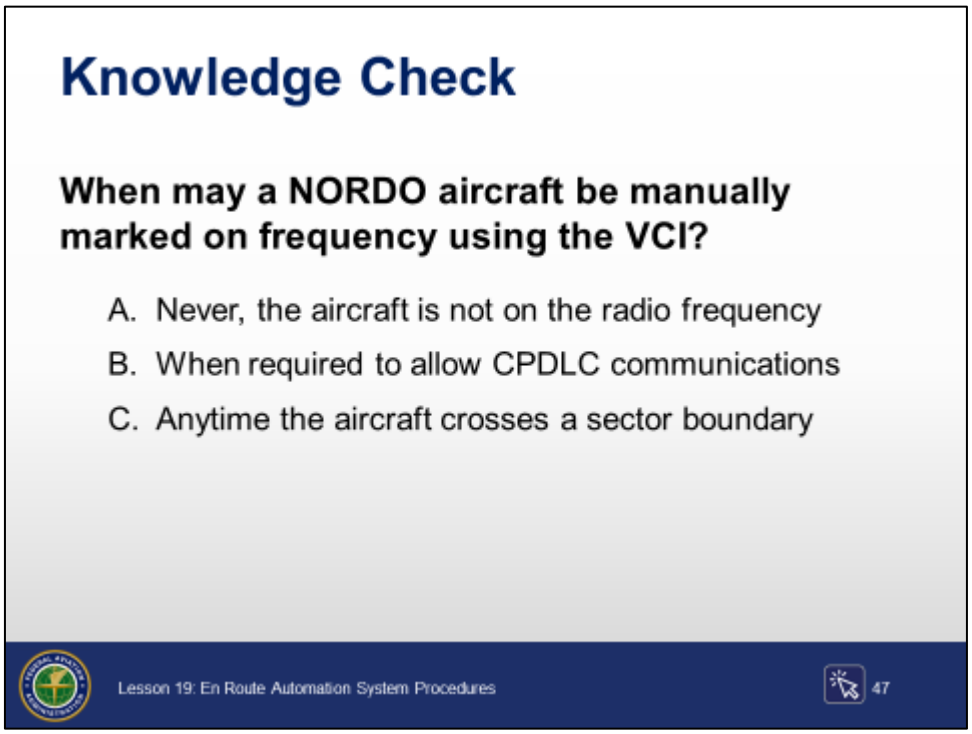
JO 7110.125, sec. 8



- Whenever there is a shutdown or failure of CPDLC service:
  - The Operations Manager in Charge (OMIC) must coordinate with each area to ensure controllers refrain from initiating new CPDLC uplinks and start cleaning up existing CPDLC messages
  - Controllers must use voice to broadcast a message alerting pilots to the shutdown and request no pilot downlinks until further advised
  - Controllers must take action to ensure that any open or abnormally closed uplinks at the time of the shutdown are resolved, by voice, with each aircraft

CPDLC NATIONAL PROCEDURES *(CONT'D)*

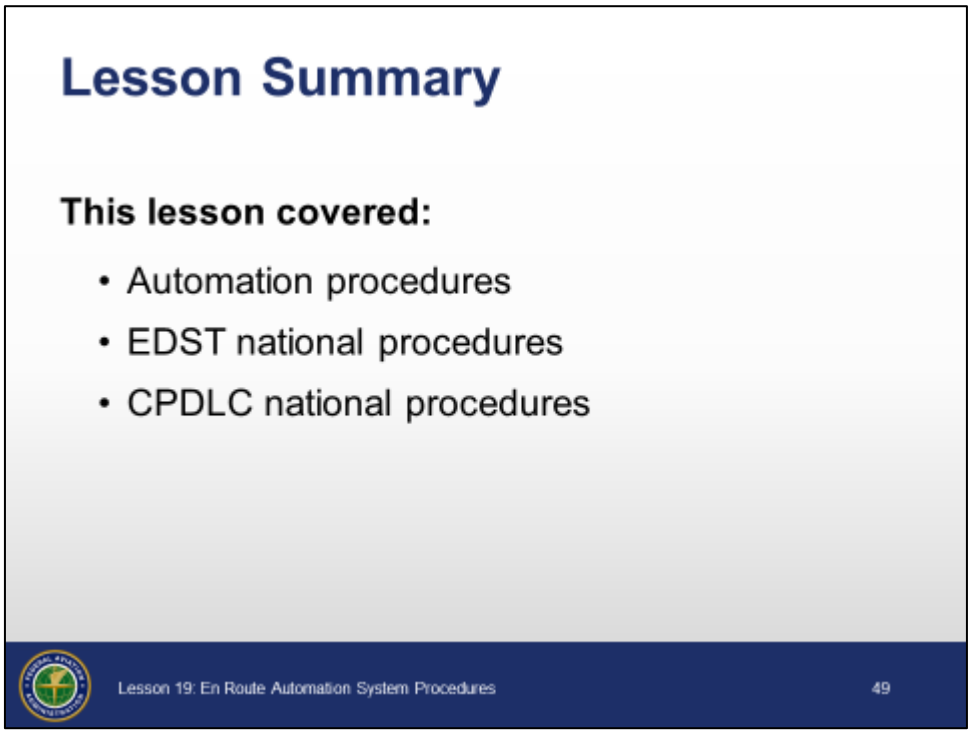
Knowledge Check



Question: When may a NORDO aircraft be manually marked on frequency using the VCI?

CONCLUSION

Lesson Summary



This lesson covered:

- Automation procedures
  - Procedural precedence
  - Conflict Alert and Mode C Intruder Alert
  - E-MSAW
  - Computer entry of flight plan information
  - Reported altitude
  - Route information
  - Selected altitude limits
  - Sector eligibility
  - Coast track
  - ERAM computer entry of hold information
  - ERAM visual indicator of Special Activity Airspace

Continued on next page

CONCLUSION *(CONT'D)*

Conclusion (Cont'd)

- EDST national procedures
  - Conflict detection and resolution
  - Trial planning
  - Conflict Probe based clearances
  - Aircraft List, Departure List, and Flight Data management
  - Manual coordination and the Coordination Menu
  - Holding
  - Recording of control data
  - Acknowledgement of automated notification
  - Currency of trajectory information
  - Delay reporting
  - Overdue aircraft
  - Use of GPD
  - Forecast winds
  - Interfacility connectivity
  - Surveillance and Flight Data outages
  - Airspace configuration elements
- CPDLC national procedures
  - Messages
  - Clearances
  - Initial Contact Mismatch
  - Overriding a CPDLC clearance
  - Voice Communication Indicator
  - Session termination
  - Altimeter issuance
  - NORDO with active CPDLC session
  - Emergencies
  - CPDLC shutdown or failure

APPENDIX A - MISCELLANEOUS ABBREVIATIONS

Abbreviation	Meaning
A	Cleared to airport (Point of intended landing)
B	Center clearance delivered
C	ATC clears (When clearance relayed through non-ATC facility)
CAF	Cleared as filed
D	Cleared to depart the fix
F	Cleared to the fix
H	Cleared to hold and instructions issued
N	Clearance not delivered
O	Cleared to the outer marker
PD	Cleared to climb/descend at pilot's discretion
Q	Cleared to fly specified sectors of a NAVAID defined in terms of courses, bearings, radials, or quadrants within a designated radius
T	Cleared through (For landing and takeoff through an intermediate point
V	Cleared over the fix
X	Cleared to Cross (Airway, route, radial) at (Point)
Z	Tower Jurisdiction

Continued on next page

APPENDIX A - MISCELLANEOUS ABBREVIATIONS
(CONT'D)

Abbreviation	Meaning
BC	Back course approach
CT	Contact approach
FA	Final approach
FMS	Flight management system approach
GPS	GPS approach
I	Initial approach
ILS	ILS approach
MA	Missed approach
NDB	Nondirectional radio beacon approach
OTP	VFR conditions-on-top
PA	Precision approach
PT	Procedure turn
RA	Resolution advisory (Pilot reported TCAS event)
RH	Runway heading
RNAV	Area navigation approach
RP	Report immediately upon passing (fix/altitude)
RX	Report crossing
SA	Surveillance approach
SI	Straight-in approach
TA	TACAN approach
TL	Turn left
TR	Turn right
VA	Visual approach
VR	VOR approach

Continued on next page

APPENDIX A - MISCELLANEOUS ABBREVIATIONS
(CONT'D)

Abbreviation	Meaning
T *dir*	Depart (direction if specified
↑	Climb and maintain
↓	Descend and maintain
CR	Cruise
AT	At
X	Cross
M	Maintain
/*airway*	Join or intercept (airway, jet route, track, or course)
=	While in controlled airspace
WICA	While in control area
dir ECA	Enter control area
dir OOCA	Out of control area
dir ESA	Cleared to enter surface area. Indicated direction of flight by appropriate compass letter(s)
TSA *alt*	Through surface area and altitude indicated direction of flight by appropriate compass letter(s) Maintain special VFR conditions (altitude if appropriate) while in surface area
250 K	Aircraft requested to adjust speed to 250 knots
-20 K	Aircraft requested to reduce speed 20 knots
+30 K	Aircraft requested to increase speed 30 knots
SVFR	Local Special VFR operations in the vicinity of (name) airport are authorized until (time) Maintain special VFR conditions (altitude if appropriate)
B4	Before
AF	After or Past
/	Until
instructions	Alternate instructions
REST	Restriction
AOB	At or Below
AOA	At or Above
–	From-to (route, time, etc.)
(ALT)B(ALT)	Indicates a block altitude assignment. Altitudes are inclusive, and the first altitude must be lower than the second (Example 310B370)
V *time*	Clearance void if aircraft not off ground by *time*
CL	Pilot cancelled flight plan
+info+	Information or revised information forwarded
alt	Other than assigned altitude reported (Example **50**)
ARC *mi. dir.*	DME arc of VORTAC or TACAN

Continued on next page

APPENDIX A - MISCELLANEOUS ABBREVIATIONS
(CONT'D)

Abbreviation	Meaning
C *freq*	Contact (facility) or (freq.), (time, fix, or altitude if appropriate). Insert frequency only when it is other than standard
R	Radar contact
R *alt*	Requested altitude
R/	Radar service terminated
RX	Radar contact lost
RV	Radar Vector
RVX	Pilot resumed own navigation
HO	Handoff completed
E	Emergency
W	Warning
P	Point out initiated. Indicate the appropriate facility, sector, or position
FUEL	Minimum fuel
EFC *time*	Expect further clearance at (time)
-fix	Direct to fix
FRC	Full route clearance
IAF	Initial approach fix
NORDO	No radio
PT	Procedure turn
RLS	Release
REQ	Request
SI	Straight in