



**Federal Aviation  
Administration**

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

**Lesson 7: Route Amendments**










**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                | Route Amendments  |
| Duration                    | 3 hours, 45 minutes (includes lesson, part-task exercise, 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; TI 6110.101, En Route Automation Modernization (ERAM) RA-Position User Manual; TI 6110.108, ERAM Quick Reference Controller Card; ERAM ATCHI MISC 230.05; ERAM En Route Display System Management (EDSM) SRS 210.04 V1B2; SIG ERAM 1690, S1P2 Route Clearances (including ABRR) Follow On; SIG ERAM 1564, Data Comm S1P2 Route Clearances (including ABRR) |
| Prerequisites               | NONE  |
| Handout(s)                  | <ul style="list-style-type: none"> <li>⊙ Part-Task Exercise</li> <li>⊙ TI 6110.108, ERAM Quick Reference Controller Card</li> </ul>   |
| Exercise / Activity         | Refer to handout for: <ul style="list-style-type: none"> <li>⊙ Part-Task Exercise: Route Amendments</li> </ul>  |
| Scenario                    | ⊙ Run scenario 55054003_L07_S## in TTL  |
| Assessments                 | ⊙ YES - Written   |
| Materials and Equipment     | <ul style="list-style-type: none"> <li>⊙ Pencil and/or pen</li> <li>⊙ Be prepared to provide the locally adapted timer values for your facility (i.e., Altitude, Route, Generic, and Assigned Altitude uplinks)</li> </ul>  |
| Other Pertinent Information | <ul style="list-style-type: none"> <li>⊙ <b>Ensure lesson materials are downloaded to the classroom computer</b></li> <li>⊙ This lesson is based on ERAM EAE410</li> <li>⊙ The lesson has been reviewed and reflects current orders and manuals as of April 2022</li> </ul>   |

# LESSON ICON LEGEND

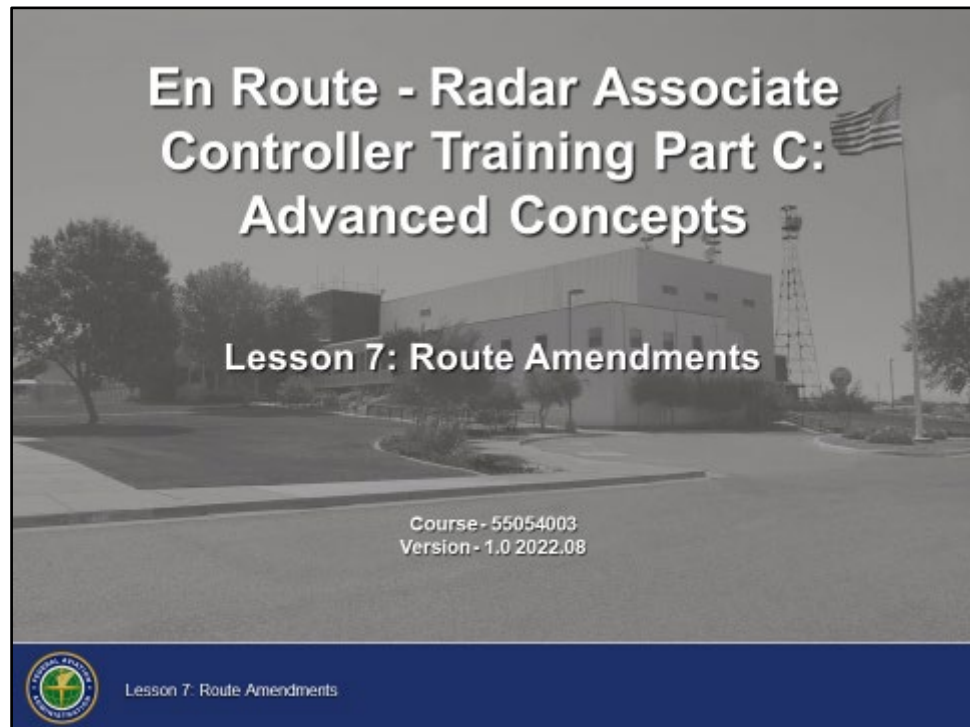
|   | Description  |
|---|--|
|  | The Activity icon indicates an exercise, lab, or hands-on activity.                                    |
|  | The Discussion Question icon signals a discussion question to be asked to the students.                |
|  | The Handout icon indicates a handout is to be 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

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## Overview



This lesson introduces route amendments. It covers select keyboard Route commands, EDST Route Menu amendments, Traffic Flow Management (TFM) Reroute functionality, and application of previous route.

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# LESSON INTRODUCTION (CONT'D)

## Lesson Objectives

### Lesson Objectives

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

- Keyboard route amendments
- Route Menu amendments
- Traffic Flow Management (TFM) Reroutes
- CPDLC route uplinks



Lesson 7: Route Amendments

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- ☉ At the end of this lesson, you will be able to identify characteristics of:
- Keyboard route amendments
  - Route Menu amendments
  - Traffic Flow Management (TFM) Reroutes
  - CPDLC route uplinks

**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.

# BASIC ROUTE AMENDMENTS

## Route Definitions

JO 7110.65,  
PCG

TI 6110.101,  
sec. 10.1

### Route Definitions

- **Preferential Departure Route (PDR)** - A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. It may be included in an Instrument Departure Procedure (DP) or a Preferred IFR Route.
- **Preferential Arrival Route (PAR)** - A specific arrival route from an appropriate en route point to an airport or terminal area. It may be included in a Standard Terminal Arrival (STAR) or a Preferred IFR Route.
- **Preferential Departure and Arrival Route (PDAR)** - A route between two terminals which are within or immediately adjacent to one ARTCC's area.



Lesson 7: Route Amendments

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**PREFERENTIAL DEPARTURE ROUTE (PDR)** - A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. It may be included in an Instrument Departure Procedure (DP) or a Preferred IFR Route.



**PREFERENTIAL ARRIVAL ROUTE (PAR)** - A specific arrival route from an appropriate en route point to an airport or terminal area. It may be included in a Standard Terminal Arrival (STAR) or a Preferred IFR Route.



**PREFERENTIAL DEPARTURE AND ARRIVAL ROUTE (PDAR)** - A route between two terminals which are within or immediately adjacent to one ARTCC's area.

**NOTE:** When a PDR is adapted to be applied by the system as embedded route text, it is called an Adapted Departure Route (ADR). An adapted PAR is called an Adapted Arrival Route (AAR), and an adapted PDAR is called an Adapted Departure and Arrival Route (ADAR).



# BASIC ROUTE AMENDMENTS (CONT'D)

## Keyboard Track Reroute Commands (QU)


TI 6110.108

ERAM EDSM  
SRS 210.04  
V1B2, Table 25

### Keyboard Track Reroute Commands (QU)

**Syntax:** QU <FIX> (FIX)...(FIX) <FLID>  
– Maximum of 17 fixes


**Examples:**



QU SEA PMD090005 KLAX ↓ AAL521

QU 2832/8119 CRG DBN KATL \* DAL2040

QU JOT STL270010 3727/8942 FAM KCGI 746



Lesson 7: Route Amendments

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- ⦿ To initiate a route amendment, press the RTE key
  - QU <space> appears in the Message Composition Area (MCA)
- Syntax:** QU <FIX> (FIX)...(FIX) <FLID>
  - Maximum of 17 fixes
- ⦿ Change of destination requires a destination indicator after the last fix. These are:
  - Down arrow “↓”
  - Asterisk “\*” - Inhibits all system added preferential routes
  - Overcast Weather “⊕” - Suppresses system added Equipment Restricted Routes (ERR) preferential routes

**NOTE:** The asterisk and overcast weather symbols may be used without changing destination.

**Examples:** QU SEA PMD090005 KLAX ↓ AAL521

QU 2832/8119 CRG DBN KATL \* DAL2040

QU JOT STL270010 3727/8942 FAM KCGI 746

# BASIC ROUTE AMENDMENTS (CONT'D)

## QU Commands - Uplinked

JO 7110.65,  
PCG

TI 6110.101,  
sec. 6.2.3.5

### QU Commands - Uplinked

- **Track Reroute (QU) command provides the ability to amend the route and uplink it to CPDLC eligible aircraft by inserting /U into the command**
- **A Due to Reason may be inserted for the clearance by using one of the following:**
  - /TFC - Due to traffic
  - /RES - Due to airspace restriction
  - /WX - Due to weather



Lesson 7: Route Amendments



- ⦿ The Track Reroute (QU) command provides the ability to amend the route and uplink it to CPDLC eligible aircraft by inserting /U into the command
- ⦿ A Due to Reason may be inserted for the clearance by using one of the following:
  - /TFC - Due to traffic
  - /RES - Due to airspace restriction
  - /WX - Due to weather
- ⦿ Composition of uplink QU commands:
  - CPDLC fields can be entered in any order
    - The CPDLC fields are the /U, the Due to Reason, and the Full Route Clearance Indicator (/FRC)

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# BASIC ROUTE AMENDMENTS (CONT'D)

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## QU Commands - Uplinked

JO 7110.65,  
PCG

TI 6110.101,  
sec. 6.2.3.5

- Spaces are optional between CPDLC fields

**Examples:** QU MCN /U /TFC /FRC 334

QU MCN /FRC/U/TFC 334

QU MCN /FRC/U /TFC 334

- Route element(s) can be before, in between, or after CPDLC fields

**Examples:** QU /U /WX MCN AMG /FRC 334

QU /U /WX /FRC MCN AMG 334

- Destination indicator, if included, will be at the end followed by the FLID

**Example:** QU MCN KVLG /U/WX/FRC ⊕ 334

- A destination must be preceded by at least one additional fix
-

# BASIC ROUTE AMENDMENTS (CONT'D)

## Acknowledge Embedded Route Text

TI 6110.101,  
sec. 10.1

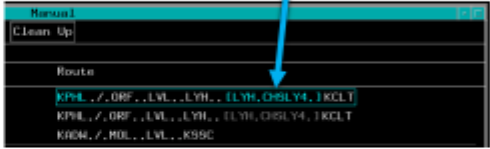
### Acknowledge Embedded Route Text

**ACL embedded route text:**


- If preferential route needs to be issued:
  - Cyan box around the entire Route field, and
  - Cyan brackets around a cyan embedded route
- If sector is not eligible for cyan coded text
  - Muted brackets around muted embedded route
  - Preferential route cannot be acknowledged

To acknowledge embedded route


1. TBH




2. TBP




Resulting Amendment





Lesson 7: Route Amendments



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- ⦿ Embedded routes can include Adapted Arrival Route (AAR), Adapted Departure Route (ADR), or Adapted Arrival and Departure Route (ADAR)
- ⦿ Aircraft List (ACL) embedded route text is indicated by:
  - If a preferential route needs to be issued:
    - Cyan box around the entire Route field, and
    - Cyan brackets around a cyan embedded route
  - If sector is not eligible for cyan coded text:
    - Muted gray brackets around a muted embedded route
    - The preferential route cannot be acknowledged
- ⦿ Only the sector with track control may acknowledge embedded route text
- ⦿ To acknowledge the embedded route text and delete the cyan action notification:
  - TBH on the cyan characters in the entry's route field
  - TBP OK in the Send/Acknowledge Route pop up
    - The Route field embedded route text is changed from cyan to white and the cyan box and brackets are removed.

# BASIC ROUTE AMENDMENTS (CONT'D)

## Amendment Template - Route Change

TI 6110.101,  
sec. 3.2.3.5

**Amendment Template - Route Change**

The screenshot shows the 'Amendment Template - Route Change' window. Step 1 points to the 'Template...' button in the menu bar. Step 2 points to the 'Template...' button in the menu bar. Step 3 points to the 'RTE' field where the route 'RDUN63047, D20, PHL803, KEMR4' is entered. Step 4 points to the 'Send' button at the bottom of the window.

1. TBP

2. TBP

3. TBP or TBE and type to insert amended route

4. TBP Send button or KBE

Lesson 7: Route Amendments

- ① To amend the route of flight using the Amendment Template
  - TBP on the flight ID of an entry in the ACL, Departure List (DL), or Graphic Plan Display (GPD), then:
  - TBP on the Template Menu bar button
    - Amendment Template for the FP is displayed
  - TBP or TBE Amendment Template RTE field and type the amended route or insert the amended portion of route
  - TBP Amendment Template Send button, or KBE
  - If the amended route contains a change in destination, an AM Change Destination Menu confirmation dialog box is displayed before sending the amendment
    - Select YES or NO in the dialog box to send or cancel the amendment

**NOTE:** FP data for the selected entry populates the Amendment Template. This provides the user with a method to amend all the displayed fields of a FP for the selected entry.

# BASIC ROUTE AMENDMENTS (CONT'D)

## Knowledge Check

### Knowledge Check

How is an unissued embedded route displayed in the route field?

- A. `KUSW..EKN..IHD.DEMME4.KPIT`
- B. `KRDU..ROA..[EKN..IHD.DEMME4.]KPIT`
- C. `T[KCH0.V38.>EKN..IHD<.DEMME4.KPIT`



Lesson 7: Route Amendments



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**Question:** How is an unissued embedded route displayed in the route field?

# BASIC ROUTE AMENDMENTS (CONT'D)

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## Knowledge Check

### Knowledge Check

Which of the following is not a valid QU amendment?

- A. QU SAV CAE090005 KCLT ↓ AAL521
- B. QU 2832/8119 CRG DBN KATL DAL2040
- C. QU 746 JOT090005



Lesson 7: Route Amendments



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**Question:** Which of the following is not a valid QU amendment?

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# ROUTE MENU AMENDMENTS (CONT'D)

## Accessing the Route Menu

TI 6110.101,  
secs. 4.2.2.1.1,  
10.2.1

**Accessing the Route Menu**

1. TBP

2. TBP

3. TBP

Or TBP: Accesses the Route Menu in one step

Lesson 7: Route Amendments

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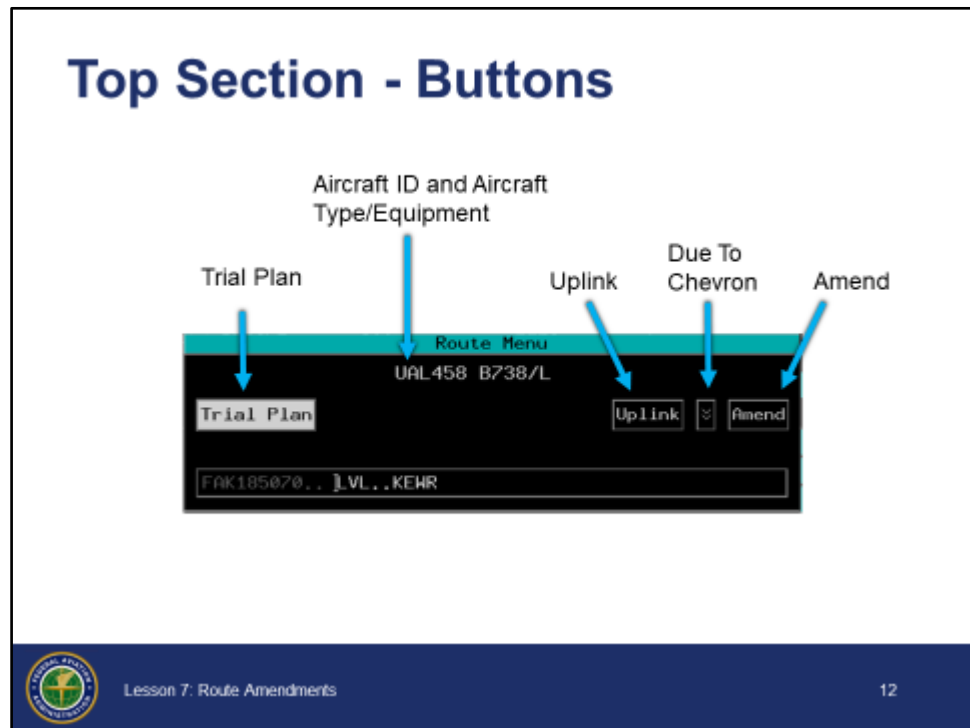
- ⦿ The Route Menu may be accessed within the ACL, DL, Plans Display, and GPD using the following steps:
  1. TBP on the flight ID of an entry
  2. TBP the Plan Options... button
    - The Plan Options Menu appears
  3. TBP Route...
- ⦿ An alternate method of accessing the Route Menu in the ACL, DL, and Graphic Plan Display is to TBP the Route field



# ROUTE MENU AMENDMENTS (CONT'D)

## Top Section - Buttons

TI 6110.101,  
sec. 10.2.2.1

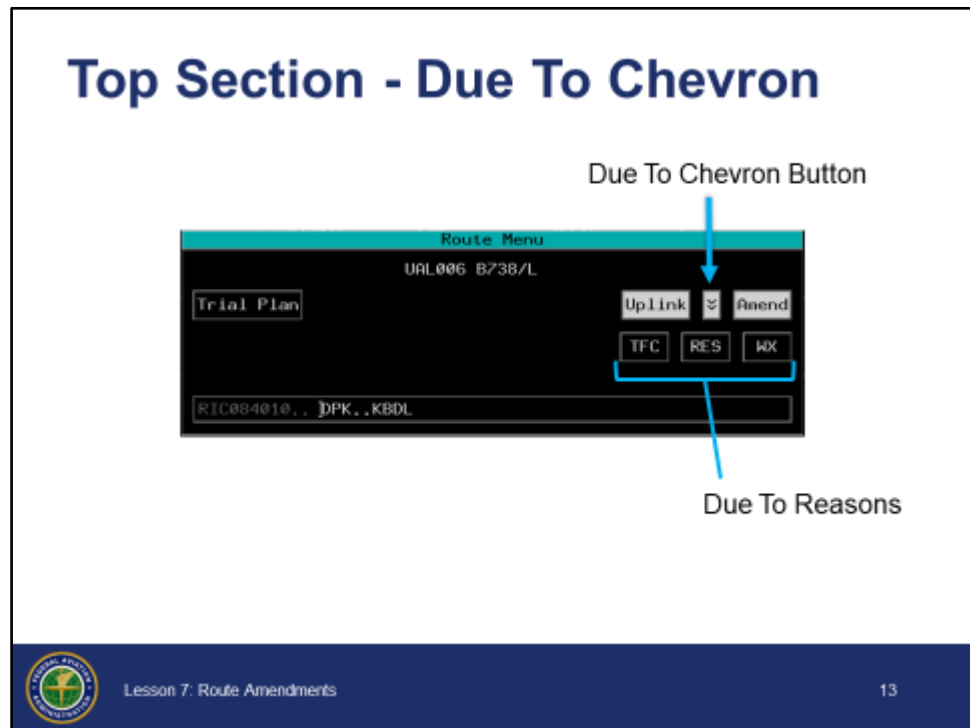


- ⦿ First row of the Route Menu includes:
  - Aircraft ID and aircraft type/equipment
- ⦿ Second row includes the following buttons:
  - Trial Plan
  - Uplink
  - Due To Chevron
  - Amend
- ⦿ The Trial Plan or Amend button may be selected, but not both
  - Selection of one of these buttons deselects the other button

# ROUTE MENU AMENDMENTS (CONT'D)

## Top Section - Due To Chevron

TI 6110.101,  
sec. 10.2.2.1



- ⦿ If the Uplink button is selectable, you may then use the Due to Chevron button to expand the menu to display three Due to Reason buttons
- ⦿ The three Due to Reason buttons are:
  - TFC - Due to traffic
  - RES - Due to airspace restriction
  - WX - Due to weather
- ⦿ Only one Due to Reason button can be selected at a time
- ⦿ When a clearance is uplinked, the system will also automatically add certain text as appropriate:
  - If the resulting route clearance does not include the destination, the text REST OF ROUTE UNCHANGED will be added to the end of the message
  - If the route clearance is generated as a result of a TFM reroute, the system will add the text TRAFFIC MANAGEMENT REROUTE to the beginning of the clearance
- ⦿ When Trial Plan is selected, the Due to Chevron button is grayed out


# ROUTE MENU AMENDMENTS (CONT'D)

## Top Section - Pending Reroute and Typing Buffer

TI 6110.101,  
sec. 10.2.2.1

**Top Section - Pending Reroute and Typing Buffer**

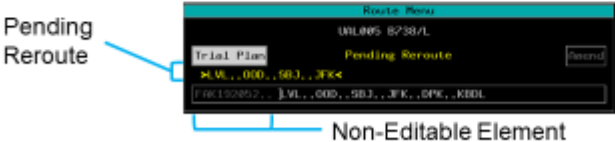
- Second row displays Pending Reroute in yellow text, but only if there is a pending reroute for the aircraft



• Third row displays the pending reroute, but only if:

- A pending reroute has been trial planned and selected, and
- Route Menu was opened from the Plans Display/Plan Options Menu

Pending Reroute



• Fourth Row: Typing Buffer

Non-Editable Element

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- ⦿ Second row displays Pending Reroute in yellow text, but only if there is a pending reroute for the aircraft
- ⦿ Third row displays the TFM Pending Reroute, but only if:
  - A pending reroute has been trial planned and selected, and
  - Route Menu was opened from the Plans Display/Plan Options Menu

**NOTE:** The Pending Reroute is sent via the Traffic Flow Management System (TFMS).

- ⦿ Fourth row is the Typing Buffer
  - Displays entire route from the aircraft's present position to destination, and
    - Includes the TFM Pending Reroute, if there is one displayed in the third row
    - Does not include adapted preferential routes
  - First route element is not editable
  - The remainder of the route is editable
  - Neither chevrons nor protected segments are shown in the typing buffer

# ROUTE MENU AMENDMENTS (CONT'D)

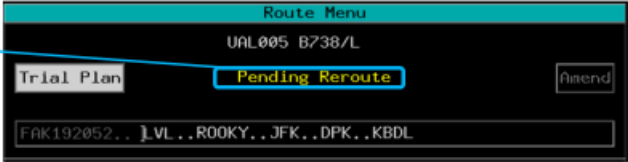
## Top Section - TFM Reroute Applied

TI 6110.101,  
sec. 10.2.2.1

### Top Section - TFM Reroute Applied

- Before Pending Reroute is applied:

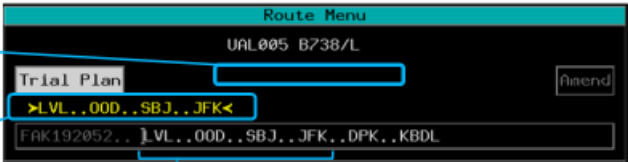
Pending Reroute displayed




- After TFM Reroute has been applied:

Pending Reroute not displayed


Applied TFM Reroute



Typing buffer route includes applied TFM Reroute



Lesson 7: Route Amendments



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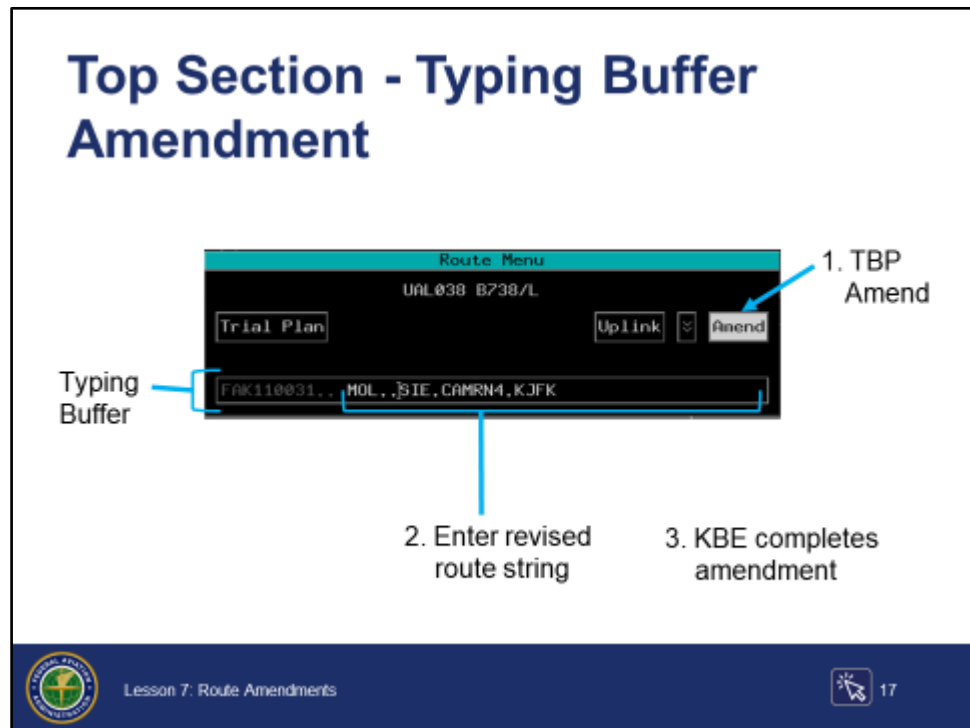
- ⦿ Before Pending Reroute is applied:
  - Second row - Pending Reroute in yellow text
- ⦿ After the TFM Reroute has been applied:
  - Second row - Pending Reroute yellow text is no longer displayed
  - Third row - Displays applied TFM reroute
  - Fourth row - Typing Buffer
    - Displays entire route from the aircraft's present position to destination, and
      - Includes the applied TFM reroute
      - Does not include adapted preferential routes
    - First route element is not editable
    - The remainder of the route is editable
    - Neither chevrons nor protected segments are shown in the typing buffer



# ROUTE MENU AMENDMENTS (CONT'D)

## Top Section - Typing Buffer Amendment

TI 6110.101,  
sec. 10.2.2.1



- ⦿ Amend the route in Typing Buffer by:
  - TBP the Amend button, or
  - TBP Uplink button, if eligible for CPDLC and a clearance uplink is desired
    - TBP of Uplink selects both Uplink and Amend buttons
    - If Due to Reason is to be included:
      - TBP Due to Chevron
      - TBP a Due to Reason (i.e., TFC, RES, or WX)
  - Use the keyboard to edit the route string
    - If needed, a typed “⊕” or “\*” symbol may be appended to the end of the route string
      - An “⊕” symbol prohibits the system from automatically applying an adapted preferential Equipment Restricted Route (ERR)
      - An “\*” symbol prohibits the system from automatically applying an adapted preferential route

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# ROUTE MENU AMENDMENTS *(CONT'D)*

## Top Section - Typing Buffer Amendment (Cont'd)

TI 6110.101,  
sec. 10.2.2.1

- 
- KBE to complete the amendment

**NOTE:** The Typing Buffer amendment is the only Route Menu amendment that uses KBE to complete the amendment.

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# ROUTE MENU AMENDMENTS (CONT'D)


## Selection Boxes Section - Include PAR

TI 6110.101,  
sec. 10.2.2.2

### Selection Boxes Section

- **Include PAR selection box**
  - Only active if the route to be amended includes an adapted Preferential Arrival Route (PAR)
  - Selecting this box prior to selecting the downstream fix results in an amendment from the current position to the selected downstream fix, and includes the appropriate PAR



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- ⦿ Below the Typing Buffer input field are selection boxes for Include PAR, Append \*, Append @, and FRC
  - Include PAR selection box
    - Only active if the route to be amended includes an adapted Preferential Arrival Route (PAR)
    - Selecting this box prior to selecting the downstream fix results in an amendment from the current position to the selected downstream fix, and includes the appropriate PAR
    - Leaving this box blank prior to selecting a downstream fix prevents the system from appending the PAR to the amendment
    - Does not work with:
      - Route strings in the Typing Buffer
      - ATC Preferred Routes
    - Default state for the Include PAR selection box is not selected

# ROUTE MENU AMENDMENTS (CONT'D)

Selection  
Boxes  
Section -  
Append \*,  
Append ⊕,  
FRC

TI 6110.101,  
sec. 10.2.2.2

## Selection Boxes Section (Cont'd)

- Append \*, Append ⊕, FRC

Prohibits application of an adapted route

Prohibits application of an adapted Equipment Restricted Route (ERR)


Uplinked route will contain a Full Route Clearance (FRC)

Include PRR

Append \*

Append ⊕

FRC



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## ⊙ Append \*, Append ⊕

- Selection of either box appends the associated symbol to the end of the route amendment
- Append \* selection box
  - When selected, prohibits the system from automatically applying any adapted preferential route
  - Does not work with route strings in the Typing Buffer
- Append ⊕ selection box
  - When selected, prohibits the system from automatically applying any adapted preferential Equipment Restricted Route (ERR)

**NOTE:** Facilities normally adapt ERRs with precedence for application over non-ERRs.

- An adapted route that is a non-ERR is still eligible to apply
- Does not work with route strings in the Typing Buffer

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## ROUTE MENU AMENDMENTS *(CONT'D)*

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**Selection  
Boxes  
Section -  
Append \*,  
Append ⊕,  
FRC (Cont'd)**

TI 6110.101,  
sec. 10.2.2.2

- Either the Append ⊕ or the Append \* may be in a selected state
    - Both of these buttons cannot be in a selected state at the same time
  - ⊙ FRC selection box
    - When selected, a subsequent uplinked route will contain a Full Route Clearance (FRC)
-

# ROUTE MENU AMENDMENTS (CONT'D)

## Direct-to-Fix / ATC Intended Route Section

TI 6110.101,  
sec. 10.2.2.3

Direct-to-Fix / ATC Intended Route Section

ATC Intended Route

Direct-to-Fixes

Direct-to-Fix

ILM..FAK..J109>LEONI..J211..JST..J211..HAGUD<..J60..DJB..V26..CETUS..DTW

FAK (CRADY)

LDN (CETUS)

IHD116053 KDTW

>LEONI<

>(JST)<

>(FWC102024)<

>(GRACE)<

>(HAGUD)<

(PHATY)

(DJB)

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- ⦿ The top portion of the Direct-to-Fix section is the ATC intended route, which:
  - Is surrounded by a dark gray box, and is not selectable or editable
  - When needed the ATC intended route display box will expand to two lines
  - Includes system applied preferred route
- ⦿ Beneath the ATC intended route display box are columns containing Direct-to-Fix names
  - Direct-to-Fix columns have:
    - A limit of 10 rows
    - One fix name displayed in each row of a column
  - The Direct-to-Fix names are separated from the remainder of the menu by a line below them

# ROUTE MENU AMENDMENTS (CONT'D)

## ATC Intended Route - Coding

TI 6110.101,  
sec. 10.2.2.3  
and Table 10-2

| ATC Intended Route - Coding          |  |                                |
|--------------------------------------|--|--------------------------------|
| Coding                               | Condition for Application  | Example(s)                     |
| Cyan characters                      | Items are part of an unissued adapted route (AAR, ADAR, or ADR)                        | <b>.J60.DJB.V26.</b>           |
| White characters in white brackets   | Item is part of an auto route with non-field 10 alphanumerics                          | <b>. [ATLIC DIRECT] KORF</b>   |
| Underlined coral characters          | Flight is not eligible for the item in the route                                       | <b><u>LDN</u></b>              |
| Cyan characters with coral underline | Items are part of an unissued AAR, ADAR, or ADR for which the flight is not eligible   | <b><u>.JST.J211.HAGUD.</u></b> |
| Yellow chevrons                      | Surround TFM protected portion of route when TFM reroute is pending for the flight     | <b>&gt;GVE..COLIN..PXT&lt;</b> |
| White chevrons                       | Surround TFM protected portion of route when a TFM reroute is in effect for the flight | <b>&gt;TYI..HPW&lt;</b>        |
| XXX or ???                           | Incomplete route indicator   | <b>[XXX] [???</b>              |

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- ⦿ Coding that may be encountered within the Route Menu ATC Intended Route display box:

- Cyan characters - Items are part of an unissued adapted route, i.e., AAR, ADAR, or ADR

Example: **.J60.DJB.V26.**

- White characters in white bracket - Item is part of an auto route with non-field 10 alphanumerics

Example: **. [ATLIC DIRECT] KORF**

- Underlined coral characters - Flight is not eligible for the item in the route

Example: **LDN**

- Cyan characters with coral underline - Items are part of an unissued AAR, ADAR, or ADR for which the flight is not eligible

Example: **.JST.J211.HAGUD.**

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## ROUTE MENU AMENDMENTS (CONT'D)

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### ATC Intended Route - Coding (Cont'd)

TI 6110.101,  
sec. 10.2.2.3,  
Table 10-2, and  
Table 4-14

- Yellow chevrons - Surround TFM protected portion of route when TFM reroute is pending for the flight

Example: GVE..COLIN..PXT

- White chevrons - Surround TFM protected portion of route when a TFM reroute is in effect for the flight

Example: TYI..HPW

- XXX or ??? - Incomplete route indicator

Examples:  



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# ROUTE MENU AMENDMENTS (CONT'D)

## Direct-to-Fix - Coding

TI 6110.101,  
sec. 10.2.2.3

| Direct-to-Fix - Coding                  |   |           |
|---|---|-----------|
| Coding                                  | Condition for Application   | Example   |
| White chevrons                          | Fix is part of TFM-protected portion of route   | ➤GVE<     |
| Cyan characters                         | Fix is part of an unissued AAR that is expected to be issued in a clearance by the local facility and the item is not the route destination   | CETUS     |
| Cyan characters within cyan parentheses | Fix is an part of an unissued AAR that is not expected to be issued in a clearance by the local facility (i.e., expected to be issued by a down route facility) and the item is not the route destination | (DJB)     |
| Gray characters                         | Fix was generated from a non-field 10 adapted route   | CCV199018 |
| Underlined coral characters             | Flight is ineligible for this fix   | IHD116053 |
| Cyan characters with coral underline    | Fix is part of an uncleared AAR, ADAR, or ADR for which the flight is not eligible  | HAGUD     |

 Lesson 7: Route Amendments  22

- ⦿ Coding that may be encountered within the Direct-to-Fix section of the Route Menu:
  - White chevrons - Fix is part of TFM-protected portion of route  
**Example:** ➤GVE<
  - Cyan characters - Fix is part of an unissued AAR that is expected to be issued in a clearance by the local facility and the item is not the route destination  
**Example:** CETUS
  - Cyan characters within cyan parentheses - Fix is part of an unissued AAR that is not expected to be issued in a clearance by the local facility (i.e., expected to be issued by a down route facility) and the item is not the route destination  
**Example:** (DJB)

*Continued on next page*



# ROUTE MENU AMENDMENTS (CONT'D)

---

## Direct-to-Fix - Coding (Cont'd)

TI 6110.101,  
sec. 10.2.2.3

- Gray characters - Fix was generated from a non-field 10 adapted route

**Example:** **CCV199018**

- Underlined coral characters - Flight is ineligible for this fix

**Example:** **IHD116053**

- Cyan characters with coral underline - Fix is part of an unissued AAR, ADAR, or ADR for which the flight is not eligible

**Example:** **HAGUD**

**NOTE:** White characters - Fix is part of the route that the aircraft has already been cleared.

---

# ROUTE MENU AMENDMENTS (CONT'D)


## Direct-to-Fix - Amend Route

TI 6110.101,  
sec. 10.2.2

**Direct-to-Fix - Amend Route**

- Use the areas outlined here to amend a route using a Direct-to-Fix

Route Menu  
AAL1651 8752/L  
Trial Plan Uplink Amend  
ILM...FAK.2109.LEONI..DTW  
☐ Include PAR ☐ FRC  
☐ Append \* ☐ Append ⊕  
Direct-to-Fix  
ILM...FAK.2109.LEONI.2211.25T.2211.HAGUD.308.DJB.V26  
.CETUS..DTW  
FAK (CRADV)  
LDM (CETUS)  
IHD16853 KDTW  
LEONI  
(25T)  
(EMC182024)  
(GRACE)  
(HAGUD)  
(PHATV)  
(DJB)



Lesson 7: Route Amendments

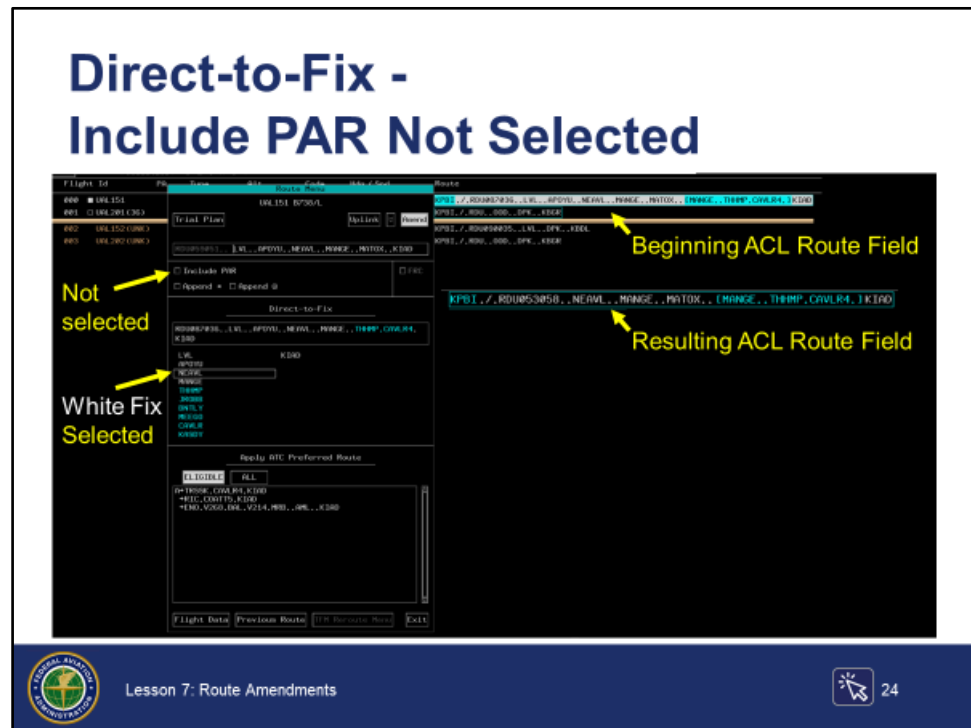
23

- ⦿ Amend the route using a Direct-to-Fix by:
  - TBP Amend button, or
  - TBP Uplink button, if eligible for CPDLC and a clearance uplink is desired
    - TBP of Uplink button selects both Uplink and Amend buttons
    - If Due to Reason is to be included:
      - TBP Due to Chevron
      - TBP a Due to Reason (i.e., TFC, RES, or WX)
    - If a Full Route Clearance from present position to destination is to be issued:
      - TBP the FRC selection box
  - If Include PAR selection box is active and the PAR is to be applied:
    - TBP Include PAR selection box
  - If adapted preferential routes are to be prohibited from applying:
    - TBP the appropriate box (i.e., Append \* or Append ⊕)
  - TBP a Direct-to-Fix to complete the amendment

# ROUTE MENU AMENDMENTS (CONT'D)

## Direct-to-Fix - Include PAR Not Selected

TI 6110.101,  
sec. 10.2.2



⦿ When Include PAR is not selected, the resulting amendment is:

- If a white fix selected:
  - Present position direct to selected white fix and then ties into the remainder of the original typing buffer route
  - Any system applied PAR will be present in the Route field (shown in the ACL)
  - If Append ⊕ is also selected:
    - The system will not apply any ERR PAR to the Route field
    - Any system applied non-ERR PAR will be present in the Route field

### Example:

[MANGE . . THMP . CAVLR4 . ] is the suppressed ERR PAR.

[MATOX . . FAK . COATT5 . ] is the applied non-ERR PAR.

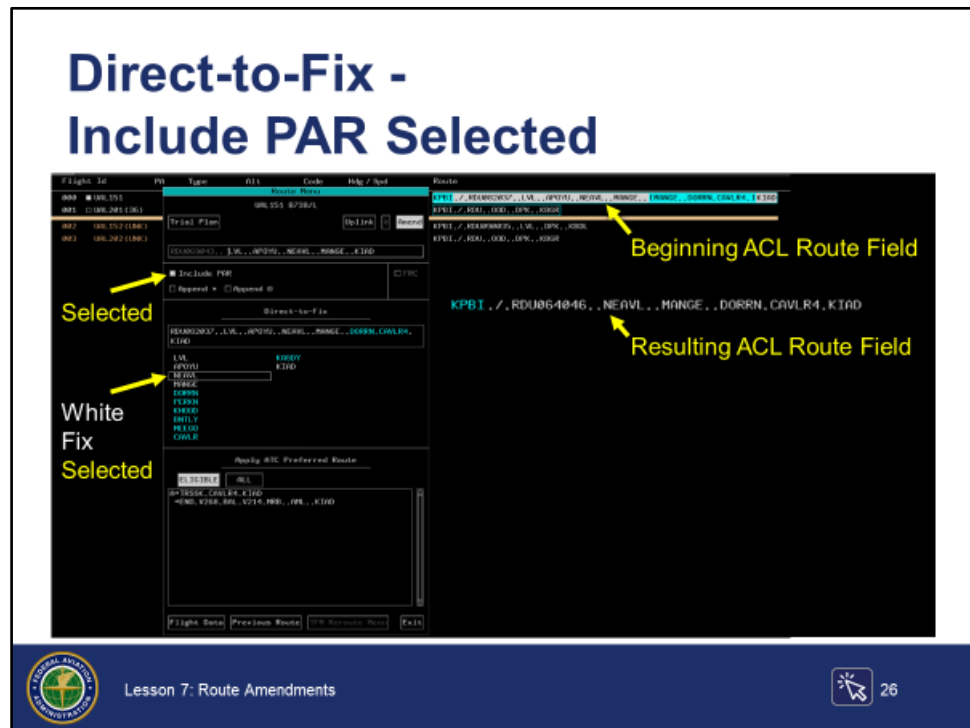
- If Append \* is also selected:
  - The system will not apply any PAR to the Route field



# ROUTE MENU AMENDMENTS (CONT'D)

## Direct-to-Fix - Include PAR Selected

TI 6110.101,  
sec. 10.2.2



⦿ When Include PAR is selected, the resulting amendment is:

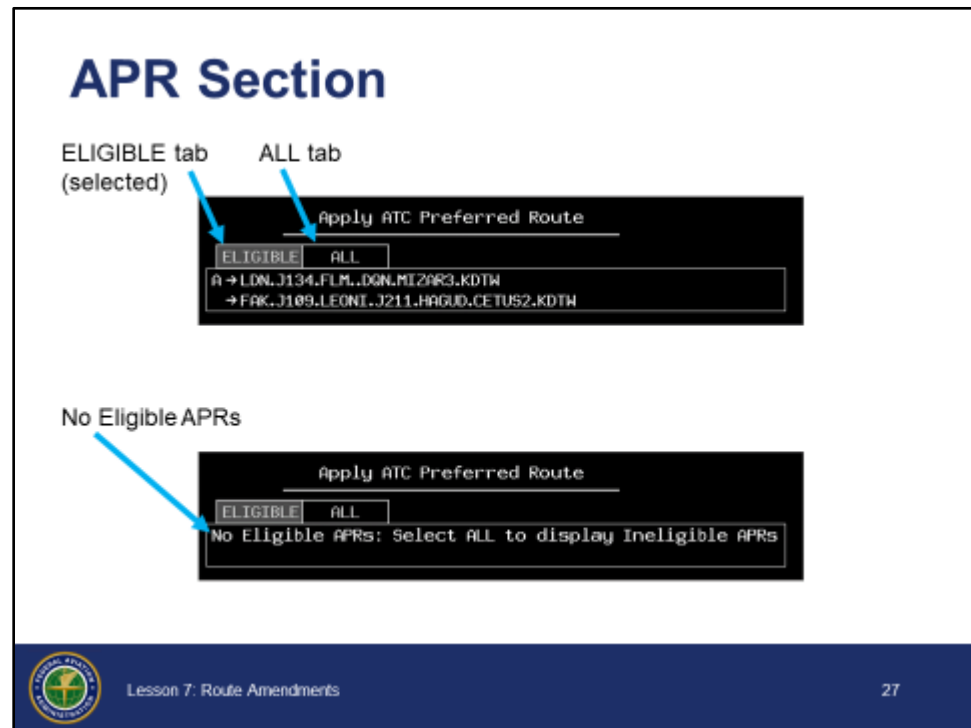
- If white fix is selected:
  - Present position direct to selected fix and then via the remaining route in the ATC Intended Route section until joining the system applied Preferential Arrival Route, then via the system applied Preferential Arrival Route
- If blue fix is selected:
  - Present position direct to selected fix and then via the remaining system applied Preferential Arrival Route contained in the ATC Intended Route section

**NOTE:** If the amendment includes a STAR for the resulting amendment to be uplinked, the amendment must be to a transition fix of the STAR or a fix prior to the transition fix.

# ROUTE MENU AMENDMENTS (CONT'D)

## APR Section

TI 6110.101,  
sec. 10.2.2.4



- ⦿ Below the Apply ATC Preferred Route (APR) title, there are two selectable tabs labeled:
  - ELIGIBLE
    - Preselected default tab upon opening Route Menu
    - Contains ATC preferred routing for the destination airport, and for which the aircraft meets eligibility requirements
    - If there are no eligible APRs to display, the following will be displayed:
      - No Eligible APRs: Select ALL to display Ineligible APRs
  - ALL
    - Contains all ATC preferred routing for the destination airport, regardless of eligibility

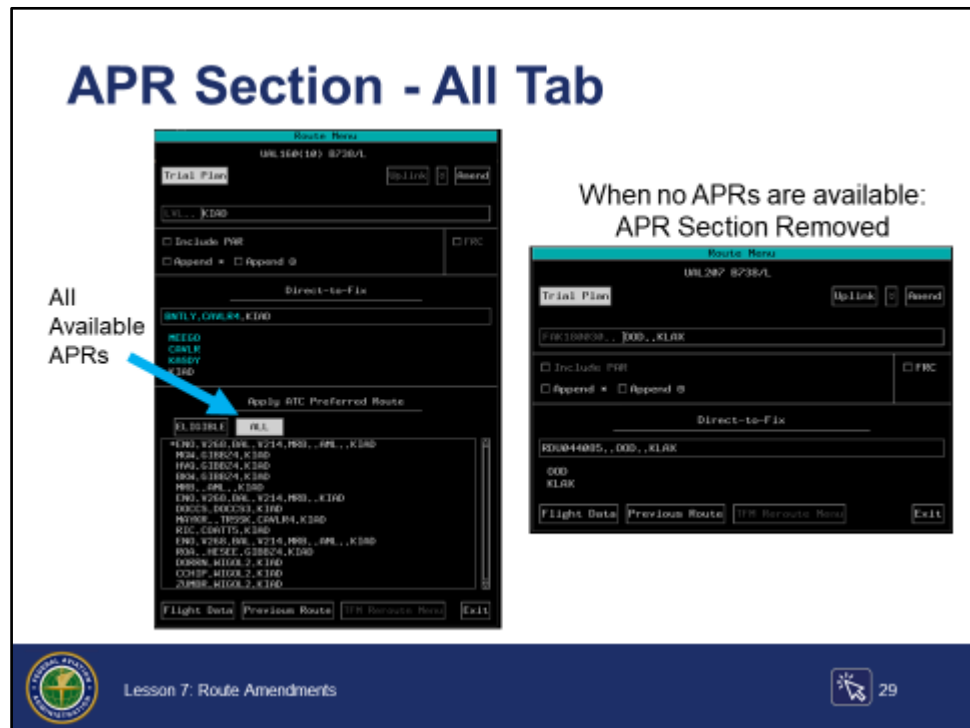
**NOTE:** The selected tab is shaded gray.



# ROUTE MENU AMENDMENTS (CONT'D)

## APR Section - ALL Tab

TI 6110.101,  
sec. 10.2.2.4



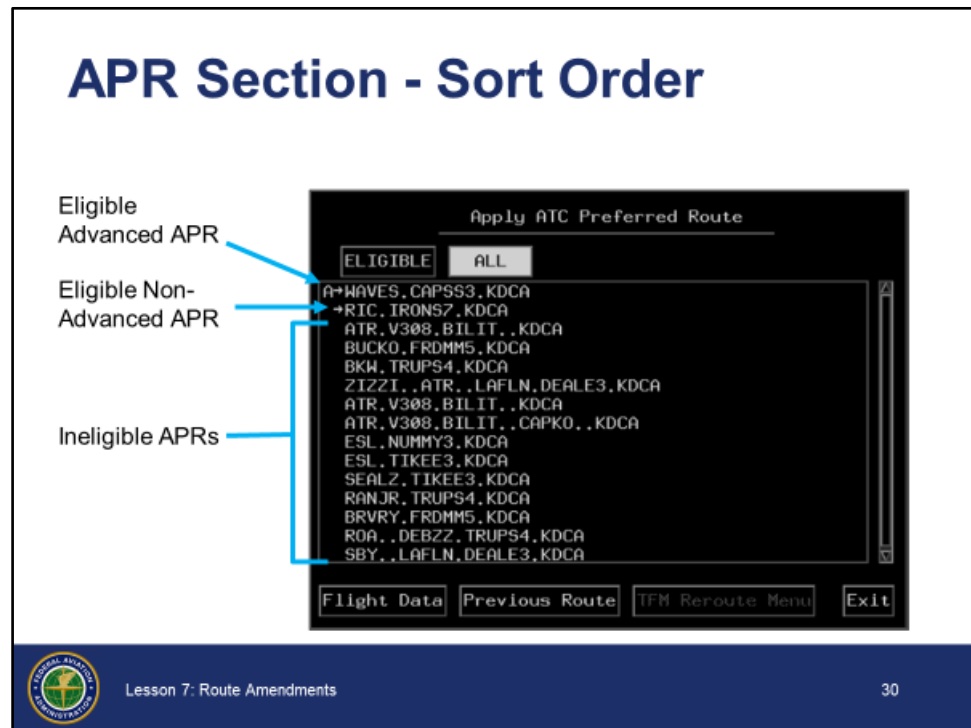
- ⦿ When ALL tab is selected:
  - List of routes will show all available APRs, both eligible and ineligible
  - When no APRs are available:
    - APR section is removed from the Route Menu
- ⦿ The ATC Preferred Route section of the menu may be scrolled up or down



# ROUTE MENU AMENDMENTS (CONT'D)

## APR Section - Sort Order

JO 7110.65, par.  
13-1-9



### ⦿ Sort Order

- Eligible advanced APRs (i.e., equipment restricted) are:
  - Sorted at the top of the list
  - Indicated with an "A" and an arrow "→" that points to the APR
  - Determined by individual facility adaptation requirements
- **NOTE:** The facility can require any aircraft equipage, aircraft equipage and RNAV value, or aircraft equipage and RNP value if adapted and deemed necessary for each APR.
- Eligible non-advanced APRs (i.e., non-equipment restricted) are:
  - Sorted second to the top of the list
  - Indicated with an arrow "→" that points to the APR
- Ineligible APRs are:
  - Sorted at the bottom of the list
  - Have no special indicator

# ROUTE MENU AMENDMENTS (CONT'D)

## APR Section - Amend Route

TI 6110.101,  
sec. 10.2.2

### APR - Amend Route

- Use the areas outlined here to amend a route using an APR

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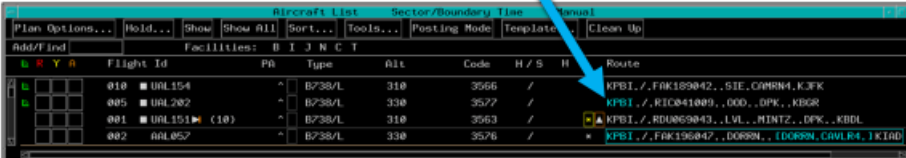
- ⦿ Amend the route by applying an ATC Preferred Route
  - TBP the AMEND button, or
  - TBP Uplink button, if eligible for CPDLC and a clearance uplink is desired
    - TBP of Uplink selects both Uplink and Amend buttons
    - If Due to Reason is to be included:
      - TBP Due to Chevron
      - TBP a Due to Reason (i.e., TFC, RES, or WX)
    - If a Full Route Clearance from present position to destination is to be issued:
      - TBP the FRC selection box
  - If adapted preferential routes are to be prohibited from applying:
    - TBP the appropriate box (i.e., Append \* or Append ⊕)
  - If needed, select ALL or ELIGIBLE tab to view desired APR
  - TBP an ATC Preferred Route to complete the amendment

# ROUTE MENU AMENDMENTS (CONT'D)

## APR - Removal of Blue Departure Point from ACL

JO 7110.65, par.  
13-1-9

### APR - Removal of Blue Departure Point from ACL



| Flight Id         | PA | Type   | Alt | Code | H / S | H | Route  |
|-------------------|----|--------|-----|------|-------|---|--|
| 010 ■ URL154      | ~  | B738/L | 310 | 3566 | /     |   | KPBI / FOK189042, SIE, CARRM4, F3K             |
| 005 ■ URL282      | ~  | B738/L | 330 | 3577 | /     |   | KPBI / FOK189042, SIE, CARRM4, F3K             |
| 001 ■ URL151 (10) | ~  | B738/L | 310 | 3563 | /     |   | KPBI / FOK189042, SIE, CARRM4, F3K             |
| 002 ABL057        | ~  | B738/L | 330 | 3576 | /     |   | KPBI / FOK196847, DORRN, (DORRN, CAVLR4, K1AD) |

Lesson 7: Route Amendments

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- ⦿ Blue departure point coding, which indicates Route Action Notification (RAN), for a needed eligible APR:
  - Will be removed if an eligible advanced APR is applied
  - If an eligible advanced APR is not available, it will be removed if an eligible non-advanced APR is applied

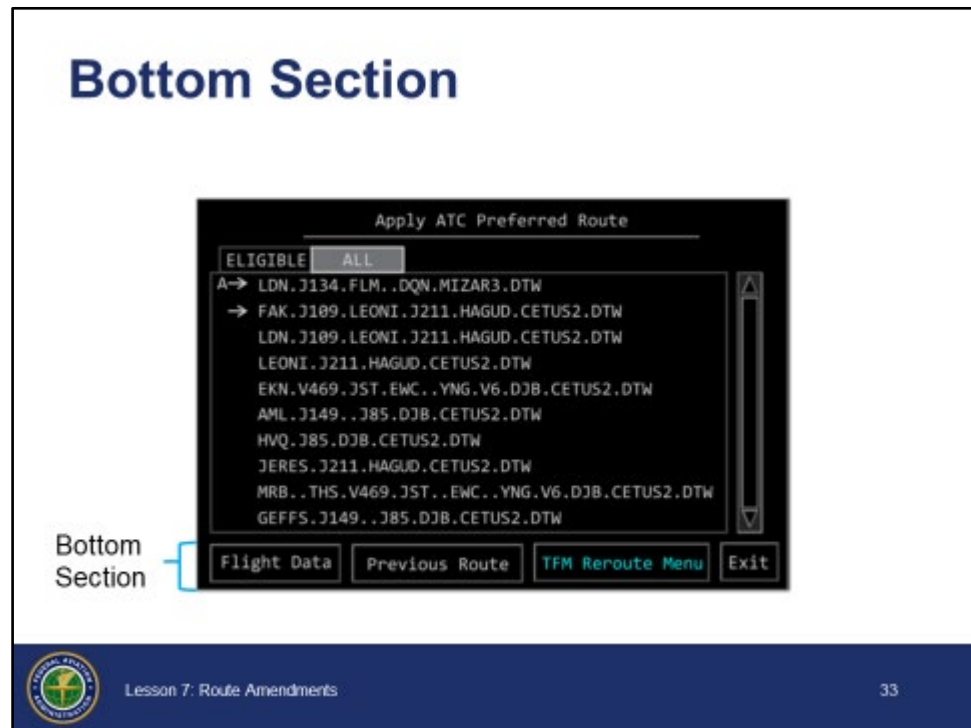
**NOTE:** RANs such as ATC preferred routes or route processing errors must be amended at the first control position that displays the RAN, unless verbally coordinated or as specified in appropriate facility directives. Do not remove RAN coding unless the sector has track control or it has been otherwise coordinated.

# ROUTE MENU AMENDMENTS (CONT'D)

## Bottom Section

TI 6110.101,  
secs. 4.26,  
5.1.1.4,  
10.2.2.5;

ERAM ATCHI  
MISC 230.05,  
pars. 3.8.40,  
3.8.42



- ⊙ On the bottom row, the Flight Data, Previous Route, Traffic Flow Management (TFM) Reroute Menu, and Exit buttons are displayed
  - Flight Data button
    - Selection will remove the Route Menu, and
    - Displays the Plans Display
      - Flight plan for the selected aircraft is at the top of the display stack
  - Previous Route button:
    - Removes the Route Menu, and
    - Displays the Previous Route Menu
      - Contains the previously entered route of flight
      - Provides the capability to amend the flight plan to the previous route
    - Is grayed out when:
      - There is no Previous Route data, or
      - Uplink button is active, because previous route cannot be uplinked

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# ROUTE MENU AMENDMENTS *(CONT'D)*

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## **Bottom Section (Cont'd)**

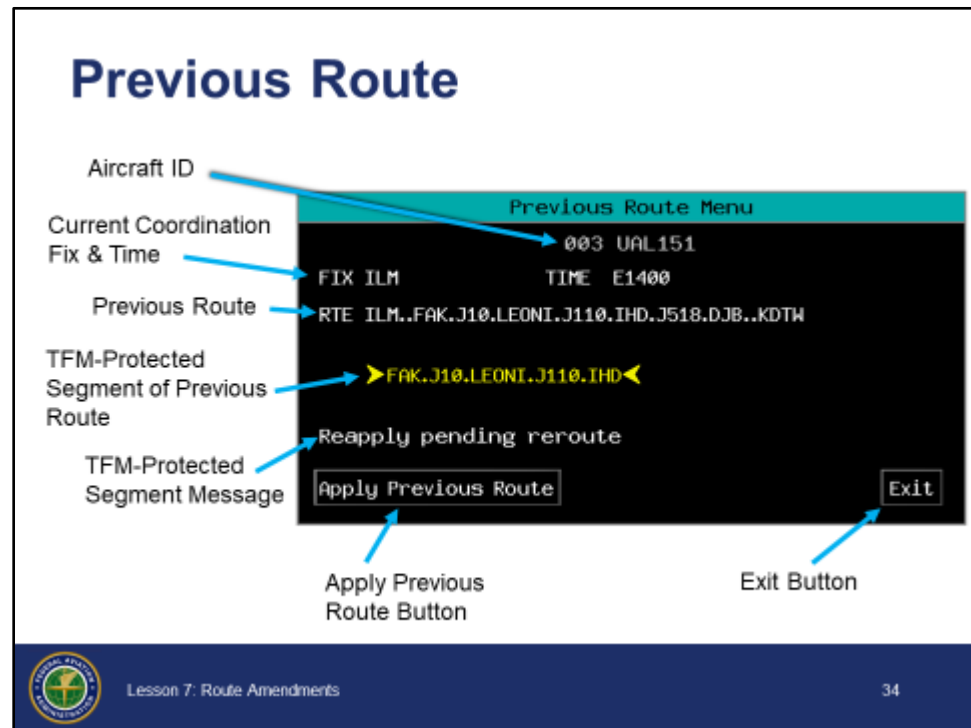
TI 6110.101,  
secs. 4.26,  
10.2.2.5

- TFM Reroute Menu button:
    - Removes the Route Menu, and
    - Displays the TFM Reroute menu
      - Provides a way for the controller to apply, reject, trial plan, and/or modify a pending reroute that was sent by TFMS
      - Is grayed out if there is no pending reroute associated with the flight
  - Exit button
    - Closes the Route Menu without:
      - Making an amendment
      - Creating a Trial Plan
-

# ROUTE MENU AMENDMENTS (CONT'D)

## Previous Route

TI 6110.101,  
sec. 4.24



- ⦿ The Previous Route Menu provides a method for displaying and applying the previous route
- ⦿ Current coordination fix, time, and route data, along with the TFM-protected segment of the route, if any, is displayed for reference purposes only and cannot be edited
- ⦿ The Previous Route Menu contains:
  - ACID
  - Data for the current coordination fix and the coordination time
  - Previous route
  - If applicable, TFM-protected segment of the previous route is displayed in yellow
    - Next row contains the message: Reapply pending reroute

*Continued on next page*

## ROUTE MENU AMENDMENTS *(CONT'D)*

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### **Previous Route (Cont'd)**

TI 6110.101,  
sec. 4.24

- Apply Previous Route and Exit buttons on the bottom row
    - If the user selects the Apply Previous Route button, the route is updated to the previous route
    - If the user selects the Exit button, the menu is removed and the route is not updated
  - ⦿ The Previous Route Menu may be accessed from the Route Menu or from the Plan Options Menu
-

# ROUTE MENU AMENDMENTS (CONT'D)

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## Knowledge Check

### Knowledge Check

The Append \* selection box inhibits what type of adapted routes?

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| <input type="checkbox"/> Include PAR | <input type="checkbox"/> FRC      |
| <input type="checkbox"/> Append *    | <input type="checkbox"/> Append ⊕ |

A. Equipment Restricted Routes (ERR)  
B. Non-ERR  
C. All

 Lesson 7: Route Amendments  35

**Question:** The Append \* selection box inhibits what type of adapted routes?

---



# ROUTE MENU AMENDMENTS (CONT'D)

## Knowledge Check


### Knowledge Check

In the Route Menu ATC Intended Route, what do the cyan coded elements represent?


Direct-to-Fix

ILM..FAK..J109..LEONI..J211..JST..J211..HAGUD..J60..DJB..V26  
..CETUS..DTW

A. Unissued preferential route  
B. Pilot requested route  
C. TFMS Request



Lesson 7: Route Amendments



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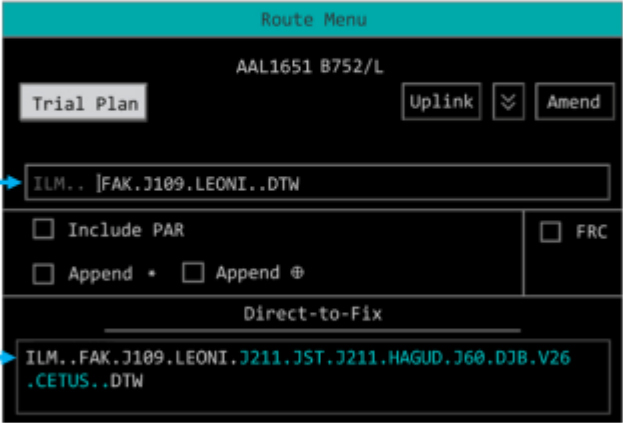
**Question:** In the Route Menu ATC Intended Route, what do the cyan coded elements represent?

# ROUTE MENU AMENDMENTS (CONT'D)

## Knowledge Check

**Knowledge Check**

In which area may you edit the route of flight?



The screenshot shows the 'Route Menu' interface for flight AAL1651 B752/L. It includes a 'Trial Plan' button, 'Uplink' and 'Amend' buttons, and a dropdown menu. Two areas are highlighted with blue arrows and labels:

- A** points to the 'Route' field containing the text: `ILM. . ]FAK.J109.LEONI..DTW`
- B** points to the 'Direct-to-Fix' field containing the text: `ILM..FAK.J109.LEONI.J211.JST.J211.HAGUD.J60.DJB.V26 .CETUS..DTW`

Other visible options include ☐ Include PAR, ☐ FRC, ☐ Append +, and ☐ Append @.

FAA Logo Lesson 7: Route Amendments 37

**Question:** In which area may you edit the route of flight?

# ROUTE MENU AMENDMENTS (CONT'D)

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## Knowledge Check

### Knowledge Check

**What are the CPDLC Due to Reasons that may be uplinked?**

- A. Airspace; Congestion; Weather
- B. Traffic; Weather; Airport closure
- C. Weather; Traffic; Airspace restriction



Lesson 7: Route Amendments



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**Question:** What are the CPDLC Due to Reasons that may be uplinked?

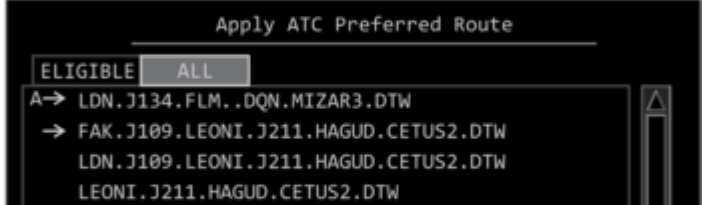
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# ROUTE MENU AMENDMENTS (CONT'D)


## Knowledge Check

### Knowledge Check


Which is an advanced eligible ATC Preferred Route?



A. Top one  
B. Top two  
C. All



Lesson 7: Route Amendments



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**Question:** Which is an advanced eligible ATC Preferred Route?

# TFM REROUTES

## Traffic Flow Management (TFM) Reroutes

TI 6110.101,  
sec. 10.4



- ⦿ TFM Reroutes are used to route aircraft around constraints in the NAS
- ⦿ TFM can pass Pre-Departure Reroute (PDRR), Airborne Reroute (ABRR), or Coded Departure Route (CDR) routes to controllers to alleviate these constraints
- ⦿ TFM reroute clearance functionality provides a way for the controller to apply, reject, trial plan, and/or modify a pending reroute that was sent by TFM
- ⦿ In addition to route change information, TFM may also send interfacility and intrafacility remarks to be applied to Field 11 of the flight plan
  - TFM remarks may include FRC (e.g., OFRC, or OFRC after MEM)
- ⦿ The two tools provided to the controller to apply TFM reroutes are:
  - TFM Quick View
  - TFM Reroute menu

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Quick View

TI 6110.101,  
sec.10.4.1

### TFM Quick View

- To open TFM Quick View

TFM Indicator Field


TBP or TBE

Route

TFM Quick View: UAL001 B738/L

OTMI TMI001

TFM Reroute Menu Uplink Apply Reroute Exit



Lesson 7: Route Amendments

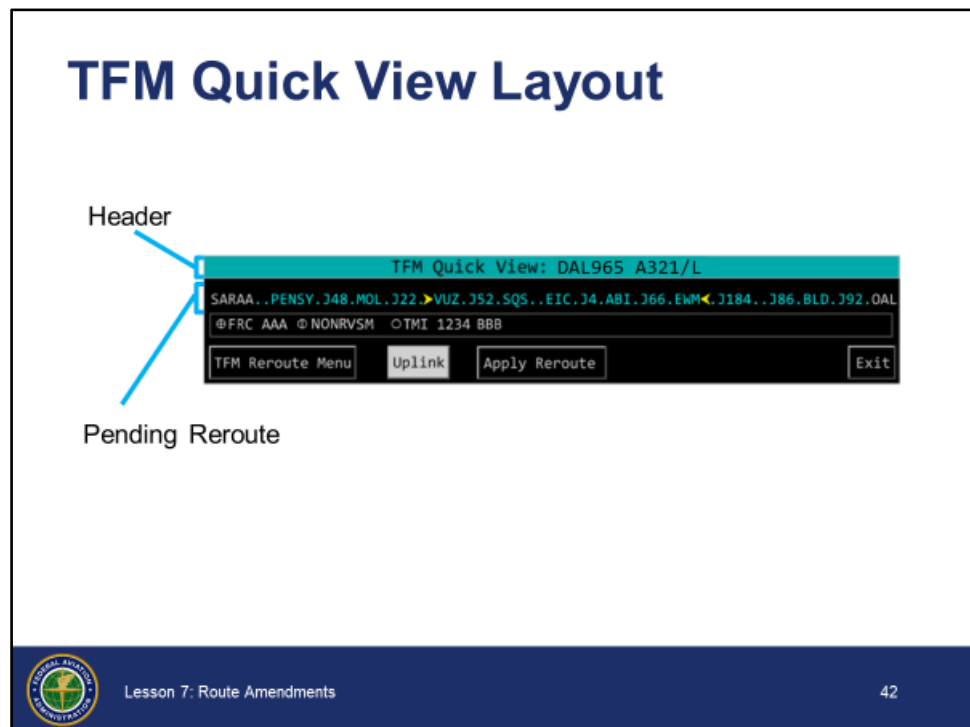
41

- ⦿ TFM Quick View allows controllers to:
  - View a pending TFM reroute and remarks
  - Apply the TFM reroute and remarks, or
  - Access the TFM Reroute menu
- ⦿ The TFM Quick View is displayed by a TBP or TBE on the cyan “T” in the ACL TFM Indicator field
  - When a pending reroute notification is received, a selectable cyan “T” is displayed in the TFM Indicator field to all sectors within a facility
- ⦿ In the case where a route fails a validation or other error and the TFM Reroute menu is not able to be opened, controllers can still view the pending reroute via the TFM Quick View

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Quick View Layout

TI 6110.101,  
sec.10.4.1



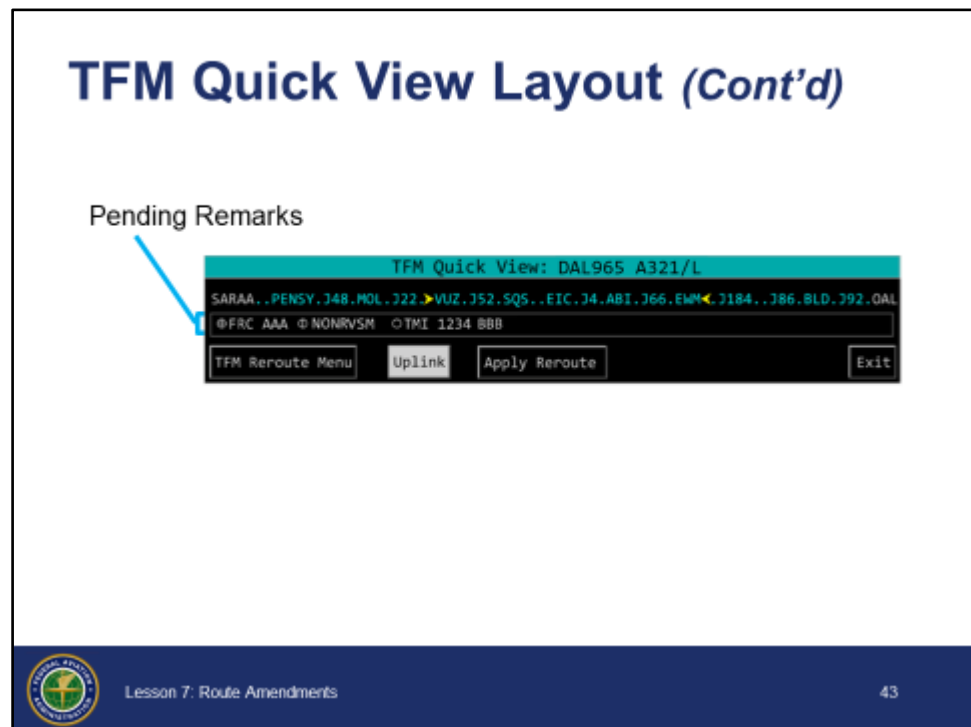
- ⊙ The four components of the TFM Quick View are:
  - Header
    - Contains TFM Quick View, aircraft ID, followed by aircraft type and equipment
  - Pending reroute data
    - Starts from the divergent fix where the flight leaves the current route to join the reroute or the first fix on the pending reroute if there is not a specific divergent fix on the current route
    - Continues to the convergent fix where the flight rejoins the current route
    - The reroute string might not contain a divergent fix that is on the current route of flight or a convergent fix (reroute may show a new route string all the way to the destination where the destination is then coded as the convergent fix)

**NOTE:** When a Pending TFM Reroute divergent point uses either a different airway or the same airway but a different airway entry or exit fix than the current flight plan route, the airway and its associated fix are displayed in cyan coding.

# TFM REROUTES (CONT'D)

## TFM Quick View Layout (Cont'd)

TI 6110.101,  
sec.10.4.1



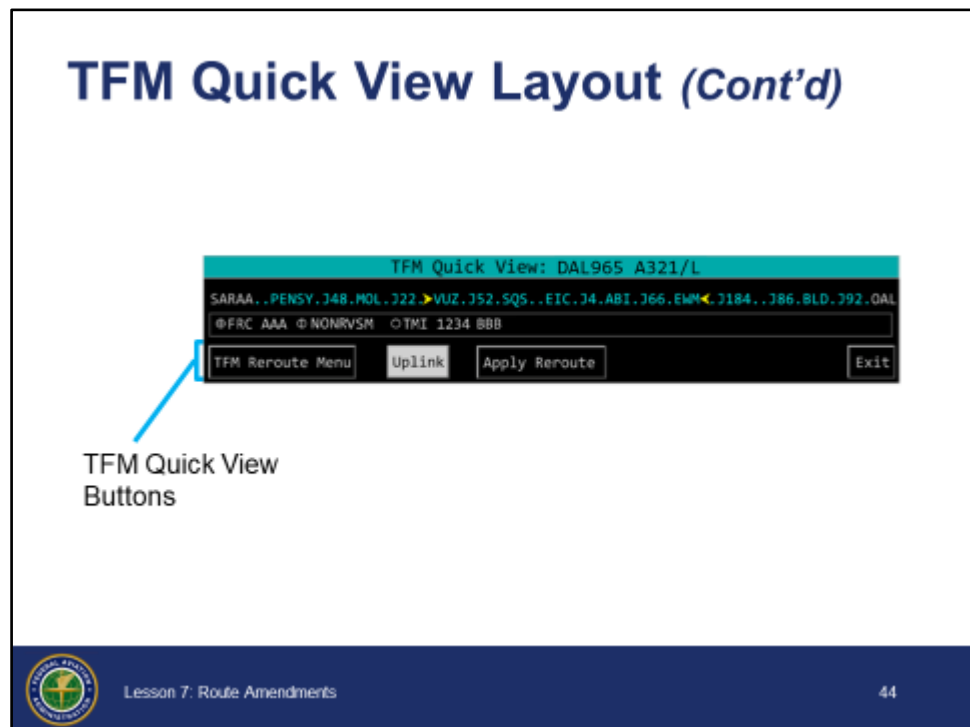
- Pending remarks data
  - Displays the flight plan remarks that will be present after the pending reroute is processed
  - This field is not selectable and cannot be edited
  - A dark gray box surrounds the remarks
  - Includes:
    - Pending TFM remarks that are received
    - Traffic Management Initiative (TMI) ID for the pending reroute
    - Special handling data from the flight plan



# TFM REROUTES (CONT'D)

## TFM Quick View Layout (Cont'd)

TI 6110.101,  
sec.10.4.1



- TFM Quick View buttons:
  - TFM Reroute menu
    - Closes the TFM Quick View and brings up the TFM Reroute menu
  - Uplink
    - Requests that a CPDLC route uplink be sent following a successful route amendment, i.e., Apply Reroute button must be subsequently selected and amendment accepted
  - Apply Reroute
    - Applies the pending TFM reroute and updates the FP in the system. Once selected, the TFM Quick View is closed.
  - Exit
    - Closes the TFM Quick View without applying the reroute

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute Menu

TI 6110.101,  
sec.10.4.2

### TFM Reroute Menu Access

The first screenshot shows the 'Route Menu' with a 'TFM Reroute Menu' button at the bottom. The second screenshot shows the 'TFM Quick View' with a 'TFM Reroute Menu' button. The third screenshot shows the 'TFM Reroute' screen with various options like 'Trial Plan', 'Current Route', and 'Pending TFM Reroute'. Arrows indicate the path from the first two screens to the third.

Lesson 7: Route Amendments

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- ⦿ The TFM Reroute menu provides another way for the controller to apply, reject, trial plan, and/or modify a pending reroute that was sent by TFM
- ⦿ TFM Reroute menu access:
  - TBP on the TFM Reroute Menu button within the Route Menu, or
  - TBP on the TFM Reroute Menu button in the TFM Quick View

# TFM REROUTES (CONT'D)

## TFM Reroute Menu (Cont'd)

TI 6110.101,  
sec.10.4.2

The screenshot displays the 'TFM Reroute Menu' interface. On the left, four labels with arrows point to specific sections of the menu: 'Header' points to the top teal bar; 'Current Route Section' points to the 'Current Route' section; 'Pending TFM Reroute Section' points to the 'Pending TFM Reroute' section; and 'Direct-to-Fix Section' points to the 'Direct-to-Fix' section. The menu itself is divided into four main sections: 1. Header: A teal bar with the text 'TFM Reroute: AAL005 B738/L'. 2. Current Route Section: A gray bar with a 'Trial Plan' button on the left and an 'Amend' button on the right. Below this, the 'Current Route' is displayed as 'PBI../ILM.J40.>TYI..HPW<.J191.PXT.KORRY4.KLGA'. 3. Pending TFM Reroute Section: A section titled 'Pending TFM Reroute: RRLGA023'. It shows a route 'TYI..>GVE..COLIN<..PXT' with 'TYI..' and 'COLIN<' highlighted in green. Below this are two input fields: 'TYI.. | GVE..COLIN..PXT.KORRY4.KLGA' and '@FRC KLGA | O TMI RRLGA023'. At the bottom of this section are 'Uplink' and 'Apply Reroute' buttons. 4. Direct-to-Fix Section: A section titled 'Direct-to-Fix' showing a list of waypoints: 'TYI', '>GVE<', '>COLIN<', 'PXT', and 'KLGA'. At the bottom of the menu are three buttons: 'Reject', 'Route Menu', and 'Exit'. The bottom of the screen features a blue footer bar with the FAA logo on the left, the text 'Lesson 7: Route Amendments' in the center, and a cursor icon with the number '46' on the right.

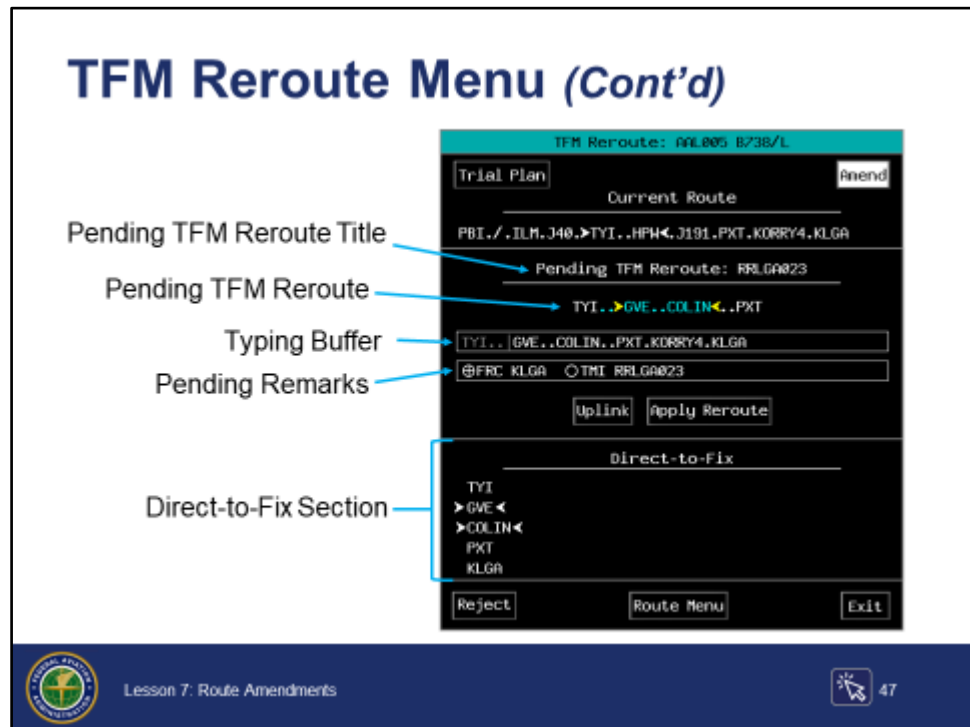
### ☉ TFM Reroute menu sections

- Header
  - Contains the title TFM Reroute, aircraft ID, and aircraft type and equipment
- Current Route Section
  - Current route is displayed under the gray current route section line
  - If there is a protected segment of the route, that segment of the route will be bound by white chevrons
- Pending TFM Reroute Section
- Direct-to-Fix Section

# TFM REROUTES (CONT'D)

## TFM Reroute Menu (Cont'd)

TI 6110.101,  
sec.10.4.2



- Pending TFM Reroute Section
  - Pending TFM Reroute title followed by the route identifier (i.e., TMI ID)
  - Pending TFM reroute data is displayed in the next row
  - Typing buffer
    - Pre-populated with the entire route data from the aircraft's present position to destination, and includes the pending reroute
  - Pending remarks field contains:
    - Flight plan remarks, if present
    - Special handling data, if present
    - TMI ID

**NOTE:** Field is not selectable and cannot be edited.

*Continued on next page*

## TFM REROUTES (CONT'D)

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### TFM Reroute Menu (Cont'd)

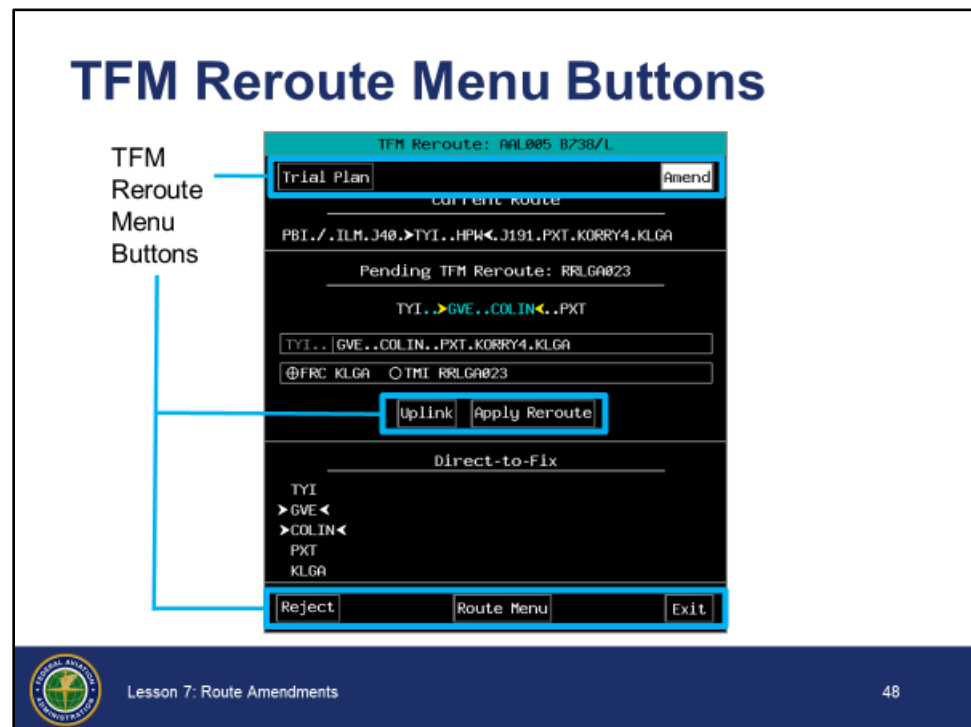
TI 6110.101,  
sec.10.4.2

- Direct-to-Fix Section
    - Provides all fixes along the route of flight
    - The functionality, layout, and coding characteristics of the Direct-to-Fix section are the same as in the Route Menu
    - Once a fix is selected, it is included in the reroute string starting at the fix selected, and an amendment or trial plan is performed depending on the mode of the menu and the menu is closed
-

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute Menu Buttons

TI 6110.101,  
sec.10.4.2



- ⦿ Trial Plan button
  - Selected by default when the menu is opened
  - When selected, the menu is in trial plan mode
    - Pressing Enter, selecting the Apply Reroute button, or selecting from the Direct-to-Fix list will bring up the Plans Display with the trial plan results
- ⦿ Amend button
  - When selected, the menu is in amend mode
    - Pressing Enter, selecting the Apply Reroute button, or selecting from the Direct-to-Fix list will amend the flight
- ⦿ Apply Reroute button
  - In amend mode, applies the pending TFM reroute and updates the FP in the system
  - In trial plan mode, the button trial plans the pending TFM reroute showing the results via the Plans Display

*Continued on next page*

# TFM REROUTES (CONT'D)

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## TFM Reroute Menu Buttons (Cont'd)

TI 6110.101,  
sec.10.4.2

- ⊙ Uplink button
    - Requests that a CPDLC route uplink be sent, following a successful route amendment, i.e., Apply Reroute button must be subsequently selected and amendment accepted
    - TBP of Uplink selects both Uplink and Amend buttons
    - If the button characters are gray, it is not selectable and the route is not eligible for uplink
  - ⊙ Reject button
    - Removes the “T” and applicable route action coding from all sectors’ displays
      - A confirmation will be displayed to confirm a rejection
  - ⊙ Route Menu button
    - Closes the TFM Reroute menu and brings up the Route Menu populated with current flight plan data
      - This provides access to the current flight planned Route Menu when there is a pending reroute
  - ⊙ Exit button
    - Closes the TFM Reroute menu without applying the reroute
-

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute Menu Coding

TI 6110.101,  
Table 10-5

| TFM Reroute Menu Coding                     |  |  |         |
|---|--|--|---------|
| Data  | Coding   | Condition for Application                                  | Example |
| Protected Segment Symbols - Current Route   | White chevrons   | Current route contains protected segment                   |         |
| Protected Segment Symbols - Pending Reroute | Yellow chevrons around protected portion of route  | Pending TFM reroute contains protected segment             |         |
| Divergent Fix - Pending Reroute             | Point (fix) at which aircraft joins reroute or divergent point is in white text                    | Divergent point is a fix within current flight plan route  |         |
| Convergent Fix - Pending Reroute            | Point (fix) at which aircraft joins current flight plan route or convergent point is in white text | Convergent point is a fix within current flight plan route |         |

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- ⦿ Data and associated coding that may be encountered within the TFM Reroute menu:

- Protected Segment Symbols - Current Route
  - Coding: White chevrons
  - Condition for application: Current route contains protected segment

**Example:**

- Protected Segment Symbols - Pending Reroute
  - Coding: Yellow chevrons around protected portion of route
  - Condition for application: Pending TFM reroute contains protected segment

**Example:**

*Continued on next page*



# TFM REROUTES (CONT'D)

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## TFM Reroute Menu Coding (Cont'd)

TI 6110.101,  
Table 10-5

- Divergent Fix - Pending Reroute
  - Coding: Point (fix) at which aircraft joins reroute or divergent point is in white text
  - Condition for application: Divergent point is a fix within current flight plan route

**Example:** SARAA . . PENSY . J48 . MOL

- Convergent Fix - Pending Reroute
  - Coding: Point (fix) at which aircraft joins current flight plan route or convergent point is in white text
  - Condition for application: Convergent point is a fix within current flight plan route

**Example:** J86 . BLD . J92 . OAL

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# TFM REROUTES (CONT'D)

## TFM Reroute Menu Coding (Cont'd)

TI 6110.101,  
sec.10.4.2

| TFM Reroute Menu Coding (Cont'd)                |  |   |   |
|---|--|---|---|
| Data  | Coding   | Condition for Application   | Example   |
| Pending Reroute String                          | Cyan text  | Portion of route that is not on current route flight plan             | See Below   |
|   |  |   | SARAA..PENSJ.148.MOL.J22>VUZ.J52.SOS..EIC.J4.ABI.J66.EWM<.J184..J86.BLD.J92.OAL |
| Flight Beyond Divergent Fix Warning             | Yellow text  | Flight is past divergent fix  | See Below   |
|   |  |   | WARNING: Flight Beyond Divergent Fix  |
| Protected Segment Symbols in Direct-to-Fix List | Each fix that is part of TFM-protected portion of route is displayed with chevrons pointing inward towards the fix, which is white | Fix is part of TFM-protected portion of the route (protected segment) | > GVE <   |
| Menu Item                                       | Underlined coral characters  | Flight is ineligible for route fix                                    | LDN   |

- ⊙ Additional data and associated coding that may be encountered within the TFM Reroute menu:

- Pending Reroute String
  - Coding: Cyan text
  - Condition for application: Portion of route that is not on current route flight plan

### Example:

SARAA..PENSJ.148.MOL.J22>VUZ.J52.SOS..EIC.J4.ABI.J66.EWM<.J184..J86.BLD.J92.OAL

- Flight Beyond Divergent Fix Warning
  - Coding: Yellow text
  - Condition for application: Flight is past divergent fix

Example: WARNING: Flight Beyond Divergent Fix

*Continued on next page*

# TFM REROUTES (CONT'D)

---

## TFM Reroute Menu Coding (Cont'd)

TI 6110.101,  
sec.10.4.2

- Protected Segment Symbols in Direct-to-Fix List
  - Coding: Each fix that is part of TFM-protected portion of route is displayed with chevrons pointing inward towards the fix, which is white
  - Condition for application: Fix is part of TFM-protected portion of the route (protected segment)

**Example:** 

- Menu Item
  - Coding: Underlined coral characters
  - Condition for application: Flight is ineligible for route fix

**Example:** 

---

## TFM REROUTES (CONT'D)

### Traffic Flow Management (TFM) Reroute Menu - Apply Reroute

TI 6110.101,  
sec. 5.4.12.5

**TFM Reroute Menu - Apply Reroute**

TFM Reroute: AAL005 B738/L

Trial Plan Amend 1. TBP

Current Route

FBI./ILM, J40.>TYI..HPW<.J191.PXT.KORRY4.KLGA

Pending TFM Reroute: RRLGA023

TYI.>GVE..COLIN<..PXT

2. TBP and edit TYI..GVE..COLIN..PXT.KORRY4.KLGA

FRC KLGA THI RRLGA023

Uplink Apply Reroute 3. TBP

Direct-to-Fix

TYI

>GVE<

>COLIN<

PXT

KLGA

Reject Route Menu Exit

Lesson 7: Route Amendments

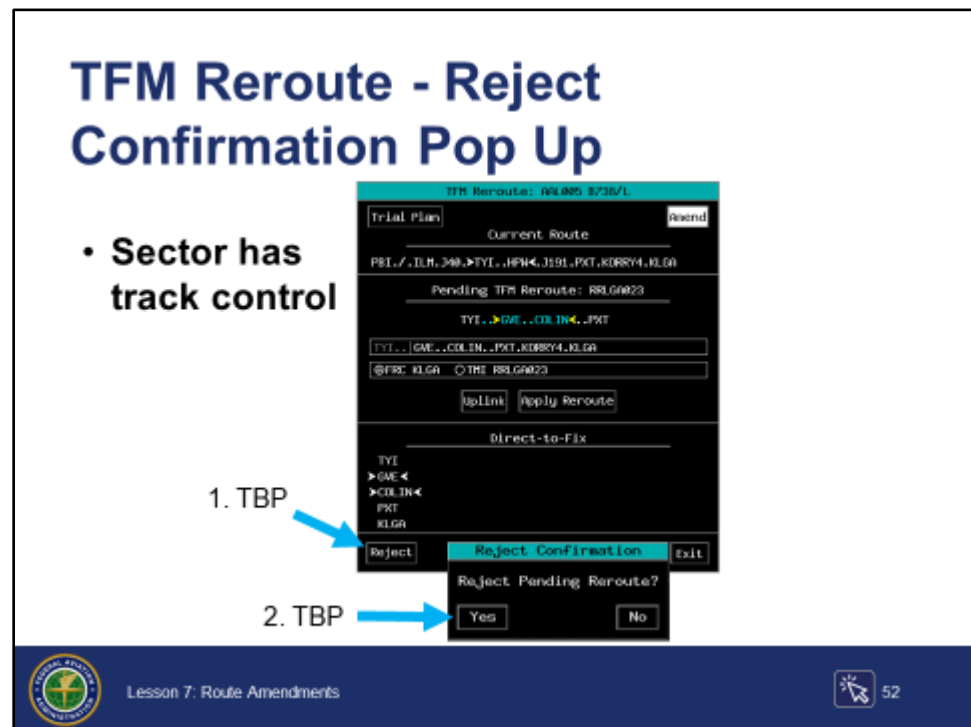
51

- ⦿ Steps for using the TFM Reroute menu typing buffer to apply a pending reroute:
  - 1. TBP the Amend button
  - 2. Modify the reroute via the typing buffer:
    - Start typing or select edit by TBP on the typing field to highlight selections to be overwritten or deleted
  - 3. TBP the Apply Reroute button or KBE
    - The flight's route is amended
    - TFM Reroute menu is removed

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute - Reject Confirmation Pop Up

TI 6110.101,  
sec.10.4.2.1.1



- ⦿ The Reject Confirmation pop up provides the means to confirm the rejection of a pending reroute that is under your control before the TFM indicator is removed from controllers' displays within a facility
- ⦿ To reject a pending reroute:
  1. TBP the Reject button on the TFM Reroute menu
    - Reject Confirmation pop up appears
  2. TBP Yes button in response to the question: Reject Pending Reroute?
    - Reject Confirmation pop up and the TFM Reroute menu are removed
    - TFM indication and applicable route action coding are removed from all displays within a facility
- ⦿ Answering No in response to a Reject Confirmation pop up:
  - Allows you to cancel the rejection of the pending reroute
  - Reject Confirmation pop up is removed, and the TFM indication and route action coding (if applicable) remain displayed

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## TFM REROUTES (CONT'D)

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### TFM Reroute - Reject Confirmation Pop Up (Cont'd)

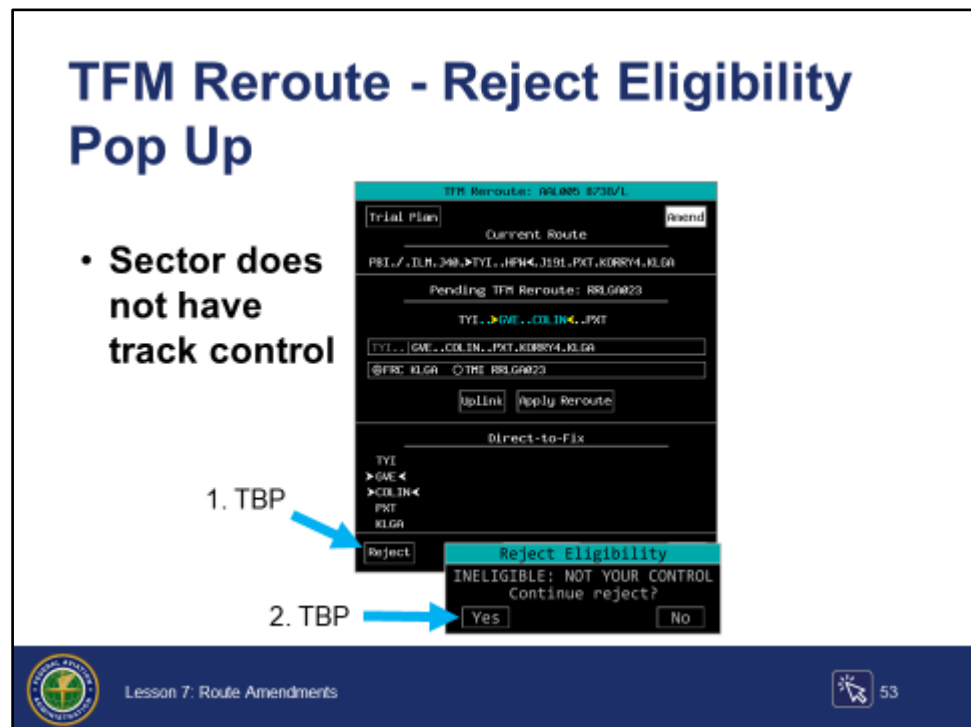
TI 6110.101,  
sec.10.4.2.1.1

- ⦿ The Reject Confirmation pop up may be closed without removing the TFM indication and applicable route action coding from the display by either:
    - TBP outside the pop up
    - KBE
-

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute - Reject Eligibility Pop Up

TI 6110.101,  
sec. 10.4.2.1.2



- ⦿ The Reject Eligibility pop up provides the means to confirm the rejection of a pending reroute that is not under your control before the TFM indicator is removed from all displays within a facility
- ⦿ To reject a pending reroute:
  1. TBP the Reject button on the TFM Reroute menu
    - Reject Eligibility pop up appears
  2. TBP Yes button in response to: INELIGIBLE: NOT YOUR CONTROL Continue reject?
    - Reject Eligibility pop up and the TFM Reroute menu are removed
    - TFM indication and applicable route action coding are removed from all displays within a facility
- ⦿ Answering No in response to a Reject Eligibility pop up:
  - Allows the user to cancel the rejection of the pending reroute
  - Reject Eligibility pop up is removed, and the TFM indication and route action coding (if applicable) remain displayed

*Continued on next page*

## TFM REROUTES (CONT'D)

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### TFM Reroute - Reject Eligibility Pop Up (Cont'd)

TI 6110.101,  
sec. 10.4.2.1.2

- 
- ⦿ The Reject Eligibility pop up may be closed without removing the TFM indication and applicable route action coding from the display by either:
    - TBP outside the pop up
    - KBE
-



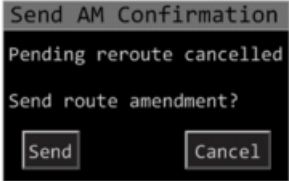
# TFM REROUTES (CONT'D)


## Traffic Flow Management (TFM) - Send AM Confirmation Pop Up

TI 6110.101,  
sec. 10.4.2.1.4

### TFM - Send AM Confirmation Pop Up

- **Provides notification to the controller that there has been a reroute cancellation while one of the following is open:**
  - TFM Reroute menu
  - TFM Quick View menu
  - Plans Display (reroute trial plan)
- **Provides the means to choose whether to continue to send or cancel an amendment**





Lesson 7: Route Amendments

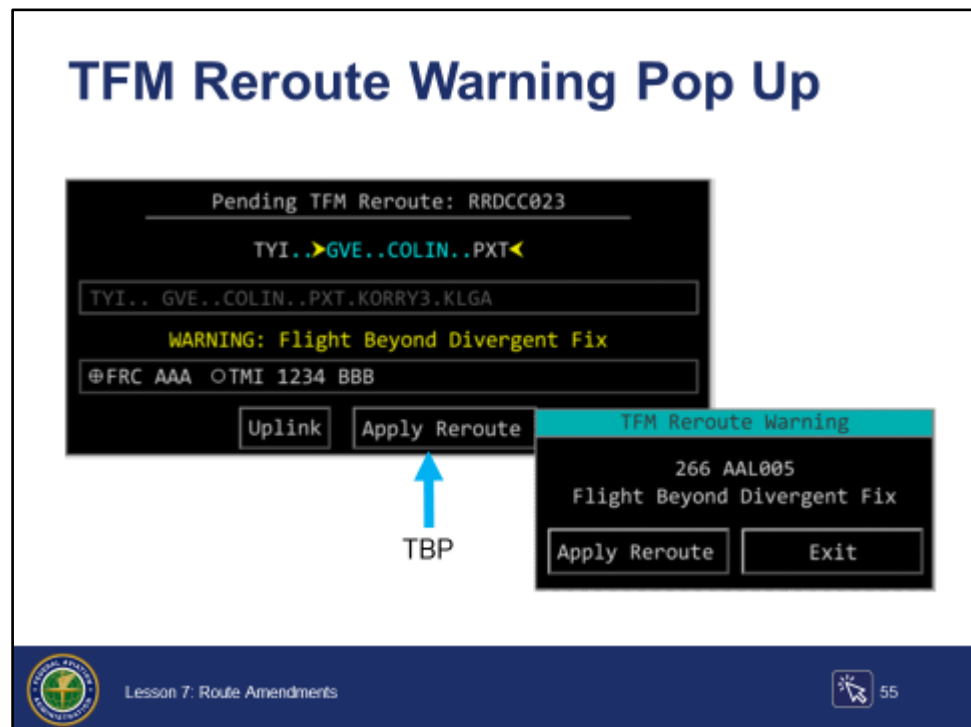
54

- ⦿ The Send AM Confirmation pop up:
  - Provides notification to the controller that there has been a reroute cancellation while one of the following is open:
    - TFM Reroute menu
    - TFM Quick View menu
    - Plans Display (reroute trial plan)
  - Provides the means to choose whether to continue to send or cancel an amendment
- ⦿ To send route amendment when pending reroute cancelled:
  - TBP Send button
    - Send AM Confirmation pop up is removed
    - Applicable open menus are removed
    - Route is amended in the system
- ⦿ To cancel pending cancelled reroute:
  - TBP Cancel button
    - Send AM Confirmation pop up is removed
    - Amendment is not sent

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute Warning Pop Up

TI 6110.101,  
sec. 10.4.2.1.5



- ⦿ When a pending reroute is displayed, and the flight is abeam or past the divergent fix
  - The text WARNING: Flight Beyond Divergent Fix is displayed in yellow, below the route typing buffer
  - When the Apply Reroute button in the Pending TFM Reroute section is selected (TBP):
    - TFM Reroute Warning pop up will be displayed
      - Provides the means to confirm or cancel the TFM reroute
    - When the warning pop up Apply Reroute button is selected:
      - Both the TFM Reroute Warning pop up and TFM Reroute menu are removed
    - When the Exit button is selected, only the TFM Reroute Warning pop up is removed. The TFM Reroute menu remains up so that the user has the option of performing another action.
  - The TFM Reroute Warning pop up is also displayed when the user selects the SEND AM button from the Plans Display or the GPD after selecting the Flight ID of the TFM Reroute trial plan

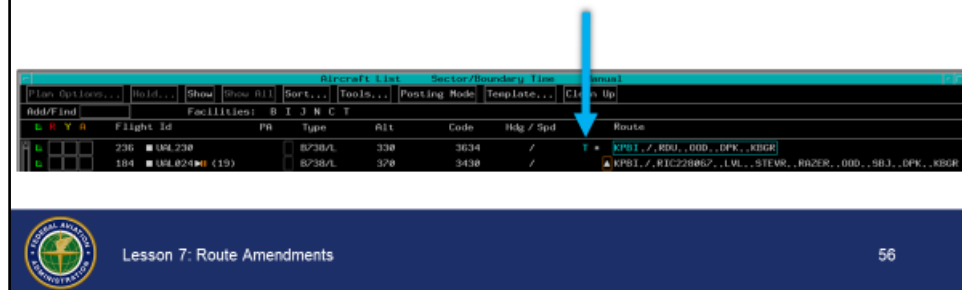
# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute Becomes Invalid

TI 6110.101,  
sec. 10.4.2.1.3

### TFM Reroute Becomes Invalid

- When a pending TFM Reroute becomes invalid:
  - Cyan “T” to the left of the route field in the ACL is removed
  - Route is no longer available to be applied

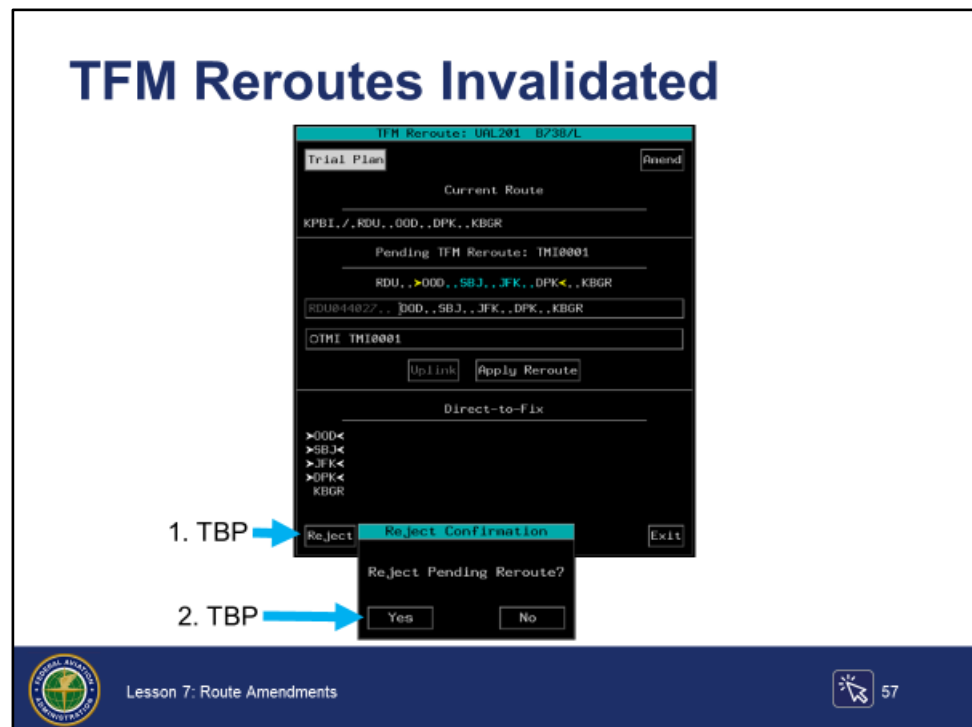


- ⊙ When a pending TFM Reroute becomes invalid:
  - The cyan “T” to the left of the route field in the ACL is removed
  - The route is no longer available to be applied

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroutes Invalidated

TI 6110.101,  
sec. 10.4.2.1.3

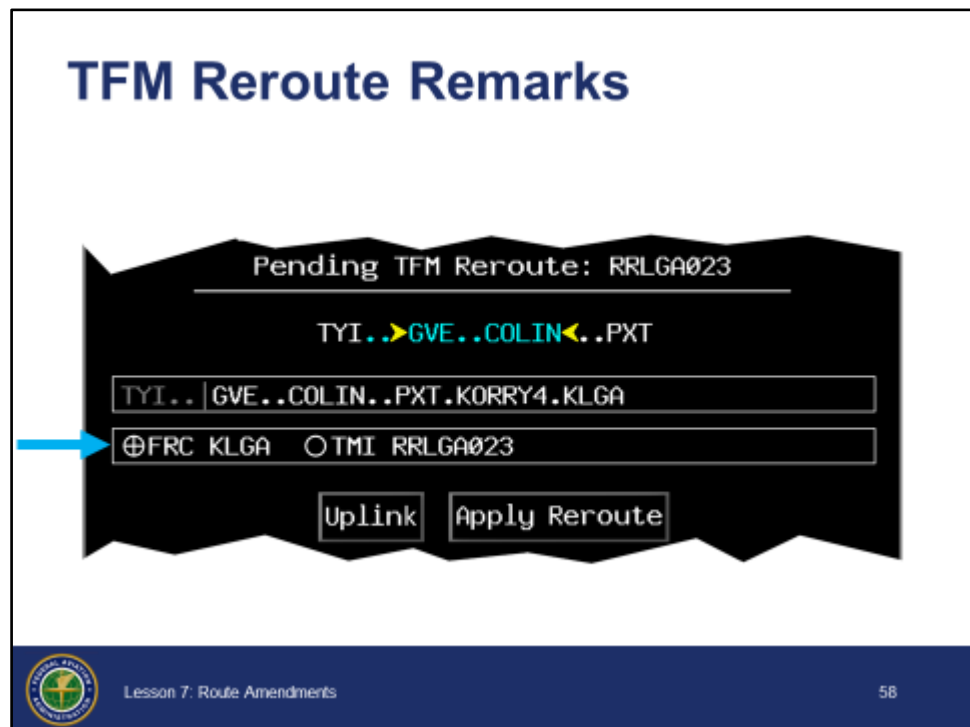


- ⊙ A pending TFM reroute is considered invalid when any of the following occur:
  - Controller rejects the route via the TFM Reroute pop up
  - A route amendment changes the existing flight plan route where the Pending TFM Reroute cannot be merged
  - Control of a flight with an unapplied Pending TFM Reroute is lost via handoff to another ERAM facility
  - Control of a flight with an unapplied Pending TFM Reroute is stolen by another ERAM facility
  - A flight with an unapplied Pending TFM Reroute has its track dropped
  - A flight with an unapplied Pending Reroute exits the local Area of Responsibility (AOR) and re-enters while still locally controlled. The Pending Reroute is invalidated upon re-entry into the AOR.

# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute Remarks

TI 6110.101,  
secs.10.4.3,  
10.4.3.1



- ⦿ TFM reroute requests may contain changes to intrafacility and interfacility remarks for proposed and active plans
- ⦿ TFM Reroute Remarks will be displayed in the remarks data of the TFM Quick View and the TFM Reroute menu
  - These remarks will exist after the pending reroute is processed
- ⦿ The format of the remarks in the Remarks display box follows the same formatting that is used in the ACL Route field and is:
  - Intrafacility Remarks - overcast weather symbol “⊕” followed by intrafacility remarks text, followed by special handling data
  - Special Handling Data - scattered weather symbol “⊙” followed by the text from the STS/ field
  - Interfacility Remarks - clear weather symbol “○” followed by the TMI ID, if present, followed by interfacility remarks text

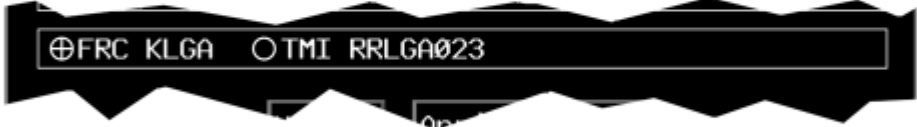
# TFM REROUTES (CONT'D)

## Traffic Flow Management (TFM) Reroute Remarks Functionality


TI 6110.101,  
sec. 10.4.3.2

### TFM Reroute Remarks Functionality

- A TFM pending reroute may add or remove remarks in a flight plan



The screenshot shows a flight plan entry: ⊕FRC KLGA ○TMI RRLGA023. The entry is highlighted with a black background and white text. Below the entry, there are some smaller, less legible text elements.



Lesson 7: Route Amendments

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- ⊙ A TFM pending reroute may add or remove remarks in a flight plan
  - Pending remarks cannot be edited
- ⊙ TFM Quick View and the TFM Reroute menu remarks may include:
  - TMI ID for the pending reroute, and
  - Special handling data from the flight plan
- ⊙ The En Route Automation System (EAS) rejects a TFM Reroute request which includes remarks, if route data is not also present
- ⊙ The EAS replaces existing stored remarks with the received data when applying a PDRR reroute
- ⊙ If an ABRR reroute is automatically applied, any remarks received in the ABRR message replace existing stored remarks
- ⊙ If an ABRR reroute is not compliant with the existing flight plan route, the proposed reroute is displayed along with any remarks received in the message
- ⊙ No capability is provided for the controller to modify remarks received from TFMS at the time the TFM Reroute is applied

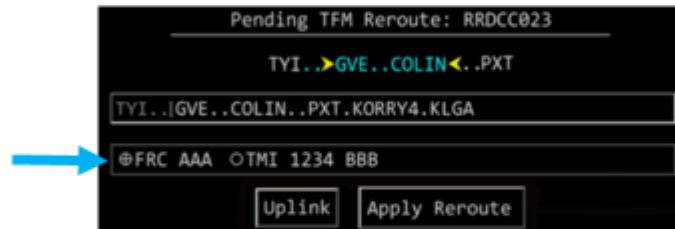


# TFM REROUTES (CONT'D)

## Knowledge Check

### Knowledge Check

What is true of TFM Pending Reroute remarks?



Pending TFM Reroute: RRDC023

TYI..>GVE..COLIN<..PXT

TYI..>GVE..COLIN..PXT.KORRY4.KLGA

@FRC AAA ○TMI 1234 BBB

Uplink Apply Reroute

- A. All remarks may be edited
- B. All remarks except the TMI ID may be edited
- C. This field is not selectable and cannot be edited



Lesson 7: Route Amendments



**Question:** What is true of TFM Pending Reroute remarks?



# TFM REROUTES (CONT'D)



## Knowledge Check

### Knowledge Check

SARAA in the Pending TFM Reroute is the point at which the aircraft will \_\_\_\_ .

SARAA..PENSY.J48.MOL

- A. begin protected route segment
- B. diverge from TFM reroute and join current route
- C. diverge from current route and join TFM reroute

 Lesson 7: Route Amendments  62

**Question:** SARAA in the Pending TFM Reroute is the point at which the aircraft will \_\_\_\_ .

# CPDLC ROUTE UPLINK

## CPDLC Route Uplink Considerations

ERAM 1564,  
par. 5.2.3.8

### CPDLC Route Uplink Considerations

- **Capability to uplink four different types of route clearances**
- **EAS will validate the command, and if valid update the flight plan**
  - After flight plan is updated, the system builds and sends an uplink message



Lesson 7: Route Amendments

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- ⦿ CPDLC provides the capability to uplink four different types of route clearances and each can be modified with optional instructions
- ⦿ The EAS will validate the command, and if valid, update the flight plan
  - After the flight plan is updated, the system will build the uplink message and send it
  - Flight crews are able to load the uplinked route into their Flight Management System (FMS)
- ⦿ There are no route menus provided at the R position
- ⦿ FDB and ACL indicators are provided for Route Uplink In Progress and Route Uplink Timeout

# CPDLC ROUTE UPLINK (CONT'D)


## CPDLC Route Clearance Types

SIG ERAM  
1690, par.  
5.2.3.4.5

SIG ERAM  
1564, par.  
3.2.2.5.3.3

### CPDLC Route Clearance Types

- PROCEED DIRECT TO <Position>
- CLEARED TO <Position> VIA <Route>
- CLEARED <Route>
- AT <Position> CLEARED <Route>



Lesson 7: Route Amendments

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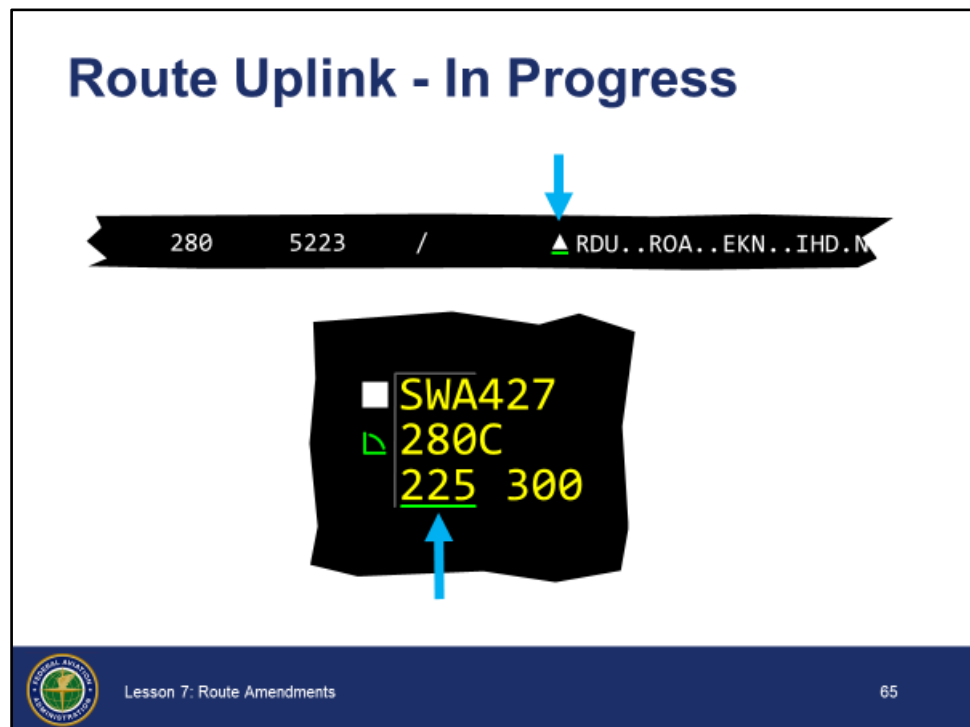
- ⦿ Except when the controller selects FRC, the system will automatically select which clearance to uplink based on command entry method and how the amended route will merge with the original route
- ⦿ There are four CPDLC route clearance types
  - PROCEED DIRECT TO <Position>
  - CLEARED TO <Position> VIA <Route>
  - CLEARED <Route>
    - Always uplinked when a controller selects the FRC option
    - If accepted by the pilot, new route will entirely replace the current route in the FMS and erase any wind and arrival data manually entered by the pilot
  - AT <Position> CLEARED <Route>

## CPDLC ROUTE UPLINK (CONT'D)

### Route Uplink - In Progress

TI 6110.101,  
sec. 10.3.2.1

TI 6110.100,  
sec. 10.3.2.1

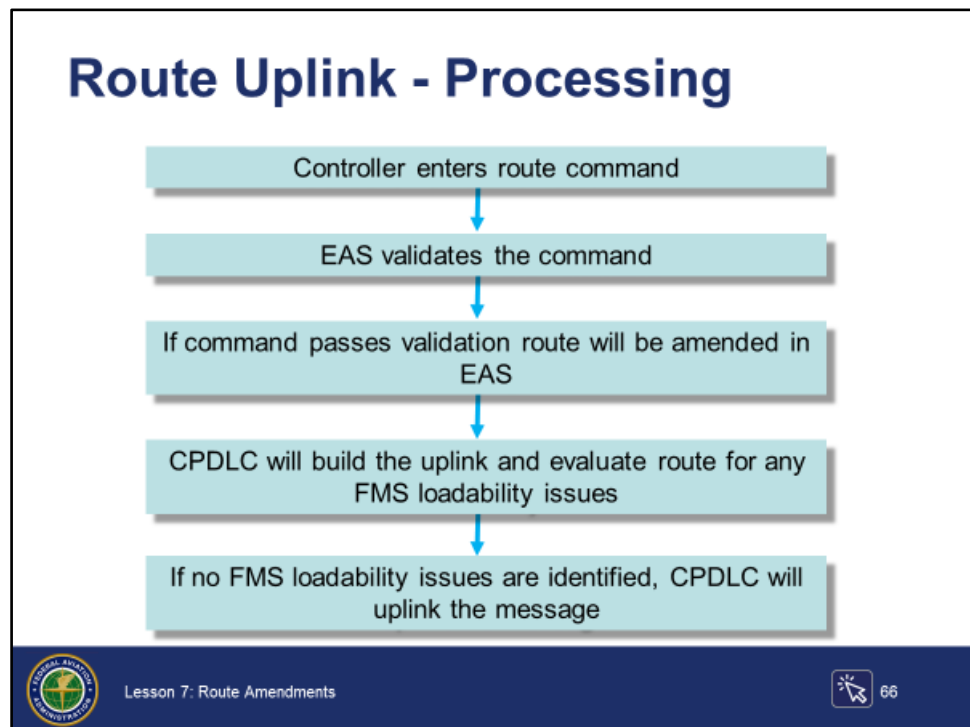


- ⦿ When a route clearance is uplinked, the Route Uplink In Progress indicator will be displayed in both the data block and the ACL
  - On the ACL, the indicator is displayed as a white upward pointing triangle with a green underline and is located to the left of the route
  - On the FDB, the indicator is a green line underneath the CID
  - Since the uplink is still open, no other Route uplink may be entered for that aircraft as long as the Route Uplink In Progress indicator is displayed

# CPDLC ROUTE UPLINK (CONT'D)

## Route Uplink - Processing

TI 6110.101,  
sec. 10.3.4



- ⦿ CPDLC Route Uplinks need to be enabled by the facility; if they are not enabled, Route Uplink pick areas will be grayed out
- ⦿ CPDLC route message construction and uplink processing:
  - Starts when controller successfully enters route command
  - The EAS will validate the command (e.g., syntax is correct, the flight ID exists, no duplicate flight IDs, CPDLC conditions, etc.)
  - If the command entry passes all validation the route will be amended and displayed in the ACL

*Continued on next page*

## CPDLC ROUTE UPLINK (CONT'D)

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### Route Uplink - Processing (Cont'd)

TI 6110.101,  
sec. 10.3.4

SIG ERAM  
1690, par. 3.2.7

JO 7110.65, par.  
13-2-3

- CPDLC will build the uplink and evaluate route for any FMS loadability issues
    - When CPDLC determines there is an FMS loadability issue, an error message will be displayed in the Response Area that will identify the issue
    - The uplink will not be sent, so the aircraft will still be cleared on the original route
    - The route will still be amended in ERAM, so there will be a disconnect between the FMS and ERAM that must be resolved by the controller
  - If no FMS loadability issues are identified, CPDLC will build the appropriate uplink message and send it
  - ⊙ When a response of WILCO is received, the Route Uplink In Progress indicator is removed
  - When the WILCO is received, any FDB 4th line heading information will be removed
-

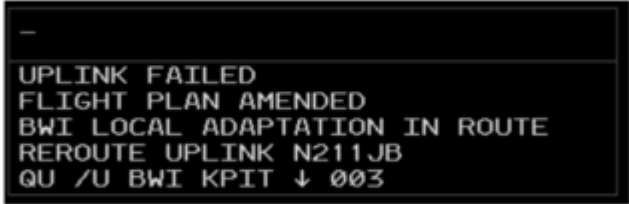
# CPDLC ROUTE UPLINK (CONT'D)

## Route Uplink - Loadability Issues


ERAM 1564,  
Table 39

### Route Uplink - FMS Loadability Issues

- **Example:** BWI LOCAL ADAPTATION IN ROUTE



```
UPLINK FAILED  
FLIGHT PLAN AMENDED  
BWI LOCAL ADAPTATION IN ROUTE  
REROUTE UPLINK N211JB  
QU /U BWI KPIT ↓ 003
```



Lesson 7: Route Amendments

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- ⦿ Partial list of FMS loadability issues:
  - Route conversion fails beyond US airspace
  - Route is direct to a new destination
  - Airport Identifier Other Than Departure/Destination
  - Non-ICAO airport as departure or destination airport
  - Non-ICAO format
  - Flight rules in the route string
  - Locally adapted route element in route string
  - Airway to airway
  - Delay in route
  - Re-entry operator in route
  - Lat/Longs without direction character
  - Route element with more than six characters
  - FRD with distance longer than 700 miles
  - More than 128 route elements in the route string

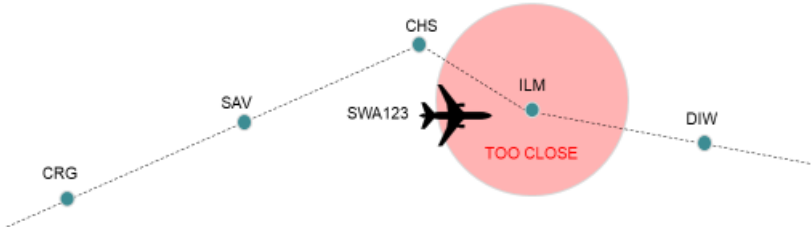
# CPDLC ROUTE UPLINK (CONT'D)

## Route Uplink - System Latency


JO 7110.125,  
par. 8.c.

### Route Uplink - System Latency

- Do NOT use CPDLC if there is a chance the aircraft will be past the first fix in the route amendment before a response is received from the pilot



Cleared Route: KMIA../CRG../SAV../CHS../ILM../DIW../KJFK  
Do not uplink direct ILM



Lesson 7: Route Amendments

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- ⦿ System latency refers to the amount of time that elapses between the time an uplink is sent and the corresponding pilot response is received. It includes:
  - Transmission times
  - Network delays
  - Processing times, and
  - Amount of time it takes a flight crew to understand the clearance and send back the response
- ⦿ CPDLC route uplink
  - Do not use CPDLC if there is a reasonable chance the aircraft will be past the first fix in the route amendment before a response is received from the pilot
  - The exact times or distances from a fix can't be provided

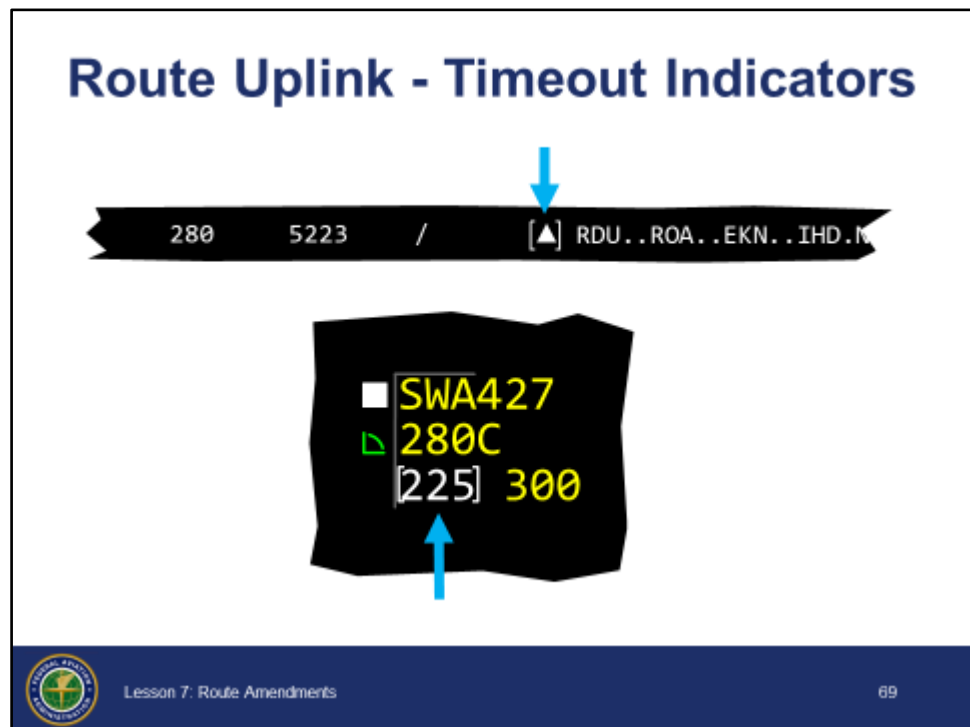


## CPDLC ROUTE UPLINK (CONT'D)

### CPDLC Route Timeout Indicator

TI 6110.101,  
sec. 10.3.2.2

TI 6110.100,  
sec. 10.3.2.2



- ⦿ If an adapted amount of time passes without a pilot response to a Route uplink, the Route Uplink In Progress indicator will be replaced by the Route Uplink Timeout indicator, and
  - On the ACL, brackets will be added to either side of the white triangle
  - On the FDB, the CID will turn white and have white brackets on either side
  - Since the uplink is still open, no other route uplink may be entered for that aircraft as long as the route uplink timeout indicator is displayed
- ⦿ A pilot response of standby does not affect route timeout indicators and locally adapted timers

**NOTE:** For route uplinks, a timeout is not considered abnormal, and there is no requirement for immediate action. It is simply a reminder that the pilot has not yet responded.

## CPDLC ROUTE UPLINK (CONT'D)

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### Knowledge Check

### Knowledge Check

**A CPDLC route amendment is always uplinked if the amendment passes validation and is recorded in ERAM.**

- A. True
- B. False



Lesson 7: Route Amendments



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**Question:** A CPDLC route amendment is always uplinked if the amendment passes validation and is recorded in ERAM.

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# CPDLC ROUTE UPLINK (CONT'D)

## Knowledge Check

### Knowledge Check

What does the white triangle with green underline indicate?



- A. Route Timeout
- B. Altitude Uplink In Progress
- C. Route Uplink In Progress



Lesson 7: Route Amendments




**Question:** What does the white triangle with green underline indicate?

## CPDLC ROUTE UPLINK (CONT'D)

### Knowledge Check

### Knowledge Check

What does the white-bracketed triangle indicate?



A. Route Timeout  
B. Altitude Timeout  
C. Pilot Timeout


**Question:** What does the white-bracketed triangle indicate?

# PART-TASK EXERCISE: ROUTE AMENDMENTS

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## Part-Task Exercise



- **Purpose**
  - Perform route amendment tasks, which include CPDLC uplink and Traffic Flow Management Reroute functionality
- **Materials**
  - TTL part-task exercise: Route Amendments
- **Directions**
  - This exercise takes approximately 45 minutes to complete. Each student must complete the checklist tasks. No headsets are required.

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|                |  |
|----------------|--|
| <b>Purpose</b> | Perform route amendment tasks, which include CPDLC uplink and Traffic Flow Management Reroute functionality. |
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|                  |  |
|------------------|--|
| <b>Materials</b> |  Handout: <ul style="list-style-type: none"><li>⦿ TTL part-task exercise: Route Amendments</li></ul>  TTL scenario |
|------------------|--|

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|                   |   |
|-------------------|---|
| <b>Directions</b> | This exercise takes approximately 45 minutes to complete. Each student must complete the checklist tasks. No headsets are required. |
|-------------------|---|

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# CONCLUSION

## Lesson Summary

### Lesson Summary

**This lesson covered:**

- Keyboard route amendments
- Route Menu amendments
- Traffic Flow Management (TFM) Reroutes
- CPDLC route uplinks

 Lesson 7: Route Amendments 74

This lesson covered:

- ⦿ Keyboard route amendments
  - Keyboard Track Reroute Commands (QU)
  - QU Commands - Uplinked
  - Acknowledge embedded route text
  - Amendment Template route change
- ⦿ Route Menu amendments
  - Accessing the Route Menu
  - Route Menu layout
  - Top section
    - Buttons
    - Due to Chevron
    - Pending Reroute and Typing Buffer
    - TFM Reroute applied

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# CONCLUSION (CONT'D)

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## Lesson Summary (Cont'd)

- How to use
- Typing Buffer amendment
- Selection Boxes section
  - Include PAR
  - Append \*
  - Append ⊕
  - FRC
- Direct-to-Fix / ATC Intended Route section
  - ATC Intended Route coding
  - Direct-to-Fix coding
  - Amend route
  - Include PAR not selected
  - Include PAR selected
- APR section
  - Eligible tab
  - All tab
  - Sort order
  - Amend route
  - Removal of blue departure point from ACL
- Bottom section
  - Exit button
  - TFM Reroute Menu button
  - Flight Data button
  - Previous Route button
    - Previous Route Menu
- ⊙ Traffic Flow Management (TFM) Reroutes
  - TFM Quick View
  - TFM Reroute menu
  - TFM Reroute menu buttons

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# CONCLUSION (CONT'D)

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## Lesson Summary (Cont'd)

- TFM Reroute menu coding
  - TFM Reroute menu - Apply Reroute button
  - TFM Reroute - Reject Confirmation pop up
  - TFM Reroute - Reject Eligibility pop up
  - TFM - Send AM Confirmation pop up
  - TFM Reroute Warning pop up
  - TFM Reroute becomes invalid
    - Reasons TFM Reroutes are invalidated
  - TFM Reroute remarks
    - Functionality
  - ⊙ CPDLC route uplinks
    - Clearance types
    - Route uplink in progress
    - Route uplink processing
    - Loadability issues
    - System latency
    - Route Timeout indicator
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