



Electronic Flight Bag (EFB) Pilot User Guide

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Revision 7.4.2

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This revision of the *Pilot User Guide* supports the following applications and versions:

- Airport Moving Map (AMM) 5.1.0
- Data Load 1.0
- EFB Document Browser (EDB) 4.5 and 4.4
- EFB Pilot Utilities 1.0
- Electronic Flight Folder (EFF) 1.4
- Enroute 1.0
- Onboard Performance Tool (OPT) 3.5
- Terminal Charts 5.1.0
- Video Surveillance System 1.0

To use the interapplication linking ("LSK Swap") between EDB 4.3 or later and OPT, you must be using OPT 3.4. If you are using EDB 4.2 and earlier, use a previous version of OPT.

To use the interapplication linking ("LSK Swap") between AMM and Terminal Charts on Class 2 devices, you must be using Terminal Charts 5.x.x and AMM 5.x.x. On Class 3 devices, you can use the LSK Swap function if you are using Terminal Charts 5.x.x and AMM 4.x.x or AMM 5.x.x.

Important: This EFB airport moving map display (AMMD) with own-ship position symbol has been authorized under TSO-C165. Use of this application with an EFB in 14 CFR Parts 121, 125, 135, and Part 91 subpart F operations requires authorization for use in compliance with AC 120-76A and AC 91.21-1B. An environmental qualifications form will not be provided for the AMMD software.

Note: The EFB AMMD with own-ship position symbol is designed to assist flight crews in orienting themselves on the airport surface to improve pilot positional awareness during taxi operations. The AMMD function is not to be used as the basis for ground maneuvering. The Jeppesen AMM application is limited to ground operations.

Assumption: Any installation instructions assume the existence of an EFB environment into which the installation will occur. See the figure in Appendix A, TSOA-Required Information.

Product Support

Contact the Jeppesen 24-hour Global Support and Control Center (GSCC) at:

- 1-800-375-4973
- USA telephone: 303-328-4585
- Email: gscct@jeppesen.com



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ABOUT THIS GUIDE

This guide contains information about using the Boeing Electronic Flight Bag (EFB) and its installed applications. Your organization has specific policies and requirements for using any of the applications that are installed on your EFB. The steps in this guide are provided only to help you learn to use the applications. Refer to your organization's procedures for additional information.

Jeppesen provides documentation and training materials to EFB customers. Training materials can include:

- The *Pilot User Guide*, which is delivered in both paper format and electronically through the EFB Document Browser (EDB) application
- eLearning materials
- Classroom training

This guide is for flight crews who operate applications on the Boeing EFB or anyone who is interested in learning about the application operation and features.

This guide is organized into sections that introduce the Boeing EFB and describe in detail the various applications that run on it. Your organization determines which applications are installed on your EFB, and you might not be running all of the applications that are described in this guide. Review the "Using the EFB" section for a general introduction to how the EFB works and then reference the appropriate section for each application.

Except as noted, the following applications might be installed on your EFB:

- Airport Moving Map (AMM)—Orients you to your location on the airport surface. This application acquires data from the airplane's 429 data bus to indicate airplane position and heading on dynamic airport maps. The application's high-resolution maps graphically portray runways, taxiways, and other airport features to support taxi or taxi-related operations.

NOTE: The AMM application with own-ship symbol is limited to Class 2 and Class 3 devices. It does not run on Class 1 devices.

- Data Load—Enables you to load certain kinds of application data directly from the flight deck without maintenance intervention.
- EFB Document Browser (EDB)—Displays documents such as government regulations and the *Pilot User Guide* in Extensible Markup Language (XML) format or Portable Document Format (PDF). Your organization can provide its own documentation (including specific policies, flight operations, or maintenance manuals) through administration tools that are provided with the EFB.
- EFB Pilot Utilities—Assists you in performing basic mathematical conversions.
- Electronic Flight Folder (EFF)—Provides an electronic flight-briefing package that replaces day-of-flight paper documentation.
- Enroute—Renders a moving map to enhance situational awareness relative to surrounding geographical and navigational entities. Enroute eliminates the need for paper enroute navigation charts on the flight deck and provides pilots with information for both flight-briefing and flight execution phases. You can specify high or low enroute themes and render the map at multiple range scales to support appropriate phases of flight. You can also create routes and load them onto the enroute map.
- Onboard Performance Tool (OPT)—Assists you in making your performance calculations and analysis. This application displays current prevailing conditions and takeoff and landing performance data that is calculated for the specific airplane type on which the EFB is installed. Your organization's administrative personnel are responsible for maintaining the airport data, airplane configuration, and policy data.
- Terminal Charts—Enables you to view any Jeppesen terminal chart that is included in your electronic database subscription. The application supports a variety of display settings and viewing tools. You can

preselect your departure, destination, and alternate airport charts for quick access, or you can view any chart from any airport as needed.

- **Video Surveillance**—Enables you to view video feeds from specific cameras in the airplane. For example, you might monitor the flight deck door area to determine entry authorization, or you might monitor passenger activity from cameras mounted in the cabin.

This guide uses the following conventions:

- Because the EFB supports touch screen, cursor control device (CCD), and bezel button input, the term *select* describes any touch, button-press, or push action.
- **Boldface** type within steps indicates the user interface elements that you use to perform the task. Button names are spelled as they appear on the screen.
- The term *type* indicates the action of entering characters into a field.

USING THE EFB

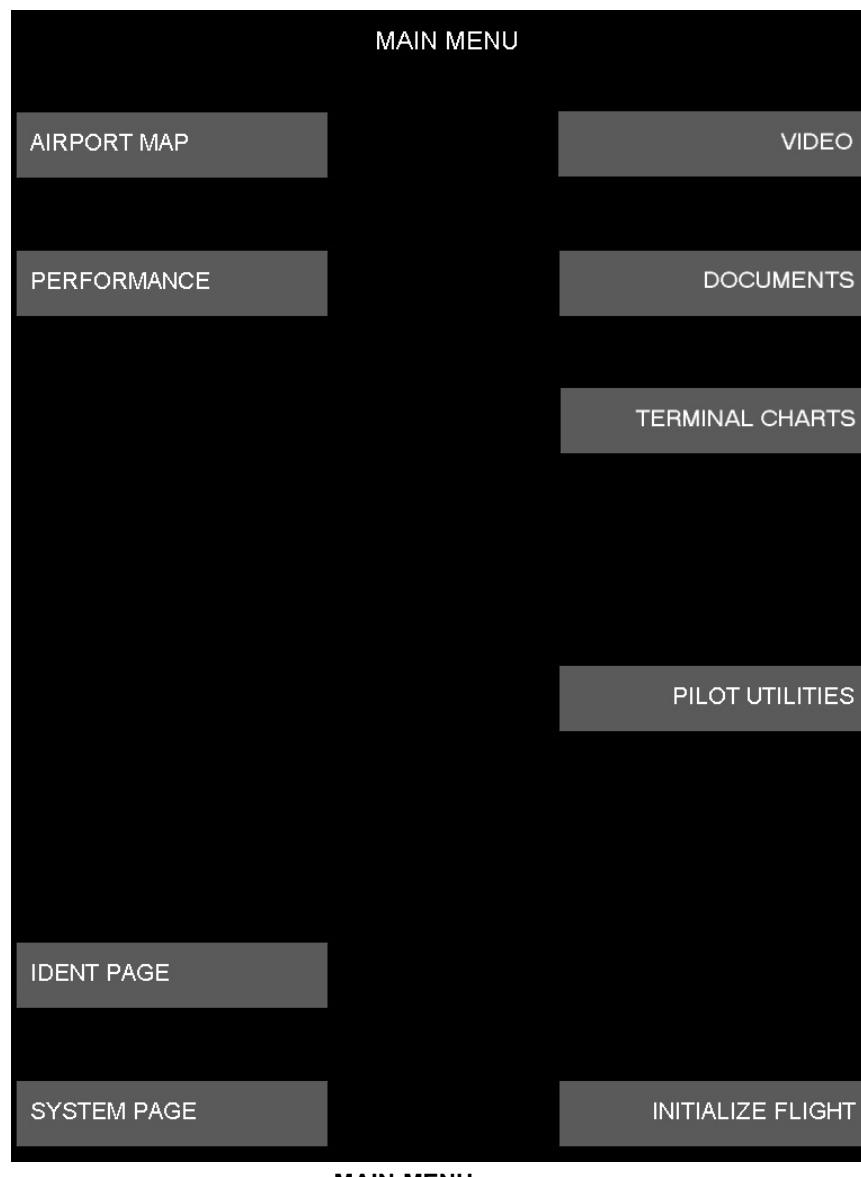
The Boeing Electronic Flight Bag (EFB) software integrates various flight-management tools on the flight deck. Depending on your organization, the applications that are integrated into your EFB might monitor system status, review and alter flight information, and manage, view, and manipulate charts. Because the EFB user interface is highly configurable, your screen might look different from the screens depicted in this guide.

This documentation addresses the Class 2 and Class 3 EFB.

NOTE: A variety of manufacturers provide Class 2 EFB hardware solutions. *Appendix B—Class 2 EFB Operational Considerations* provides information regarding significant operational considerations that differ from the information provided in this chapter.

Starting the EFB

As the EFB starts, it performs system checks, launches the applications, and loads application databases. If the EFB starts successfully, it displays the MAIN MENU screen.



MAIN MENU screen

All applications that start successfully run in the background until you specifically access them from the MAIN MENU screen. Do not select any applications or functions until all of them have completed startup and the associated buttons on the MAIN MENU turn gray, indicating availability. A button that is outlined in cyan indicates an application or function that is not yet available.

If an application requires attention, the EFB displays a MEMO notification at the top left of the screen and next to the button of the affected application on the MAIN MENU screen. If any of the loaded software fails the EFB's integrity check or fails to start, the EFB displays a FAULT notification at the top left of the screen. For more information, see the "Viewing Faults and MEMO Notifications" section.

Navigating the EFB

Access all EFB applications and monitoring tools from the MAIN MENU screen. Your organization defines the text of the EFB application button labels.

All of the Boeing and Jeppesen applications that are installed on your EFB employ standard bezel button behavior, user interface design, and keyboarding support. For details about elements that are specific to an application's interface and buttons, refer to the section that describes that application.

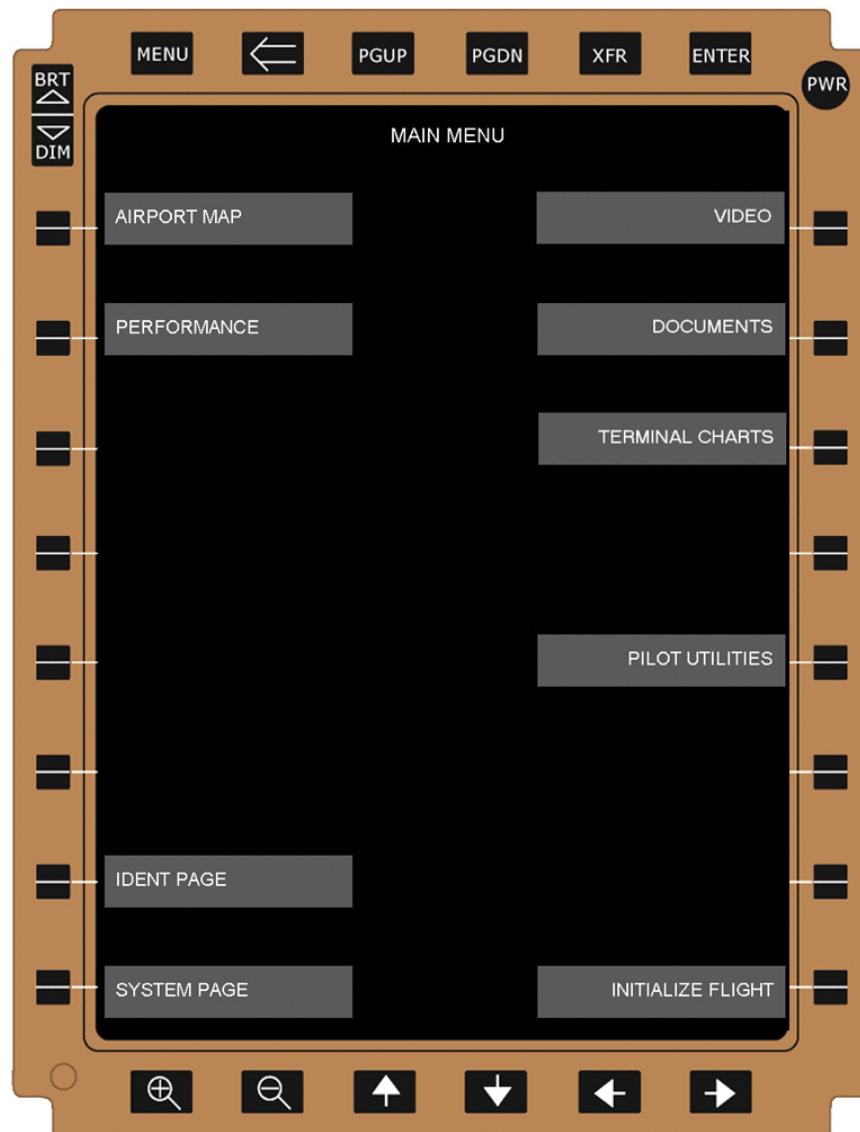
Using the Bezel Buttons

Use the EFB bezel buttons to navigate the EFB and its installed applications and to select specific functions. The look and feel of the bezel is different depending on when you are running a Class 2 or Class 3 device

NOTE: Individual sections contain additional information about specific bezel buttons when appropriate.

Using the Bezel Buttons on a Class 3 EFB Device

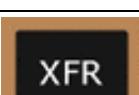
The Class 3 bezel is a feature of the installed EFB device.

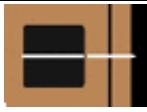


Class 3 MAIN MENU screen with bezel

The Class 3 EFB bezel contains the following buttons.

Class 3 Bezel Buttons

Button	Name	Function
	POWER	Turns the EFB backlight on and off.
	ENTER	Not currently available.
	MENU	Displays the MAIN MENU screen.
	BACK	Moves the display back one level.
	PAGE UP	Moves one display length up within the currently displayed screen. If the screen is at the top or is less than one display length long, this button is inactive.
	PAGE DOWN	Moves one display length down within the currently displayed screen. If the screen is at the bottom or is less than one display length long, this button is inactive.
	ZOOM IN	Increases the magnification of the display. When an application's zoom levels are predefined, the application snaps the view to the size that most closely matches a defined zoom level.
	ZOOM OUT	Reduces the magnification of the display. When an application's zoom levels are predefined, the application snaps the view to the size that most closely matches a defined zoom level.
	Transfer	Transfers the display of the other EFB to your EFB. When you are viewing the display of the other EFB, all buttons except XFR , MENU , and PWR are inactive. Selecting XFR or MENU while in Transfer mode returns the system to normal mode.
	UP	Scrolls or pans up within the currently displayed screen.
	DOWN	Scrolls or pans down within the currently displayed screen

Button	Name	Function
	LEFT	Scrolls or pans left within the currently displayed screen
	RIGHT	Scrolls or pans right within the currently displayed screen
	Line Select key (L, R)	Selects the corresponding menu item.

Using the Bezel Buttons on a Class 2 EFB Device

The Class 2 bezel is also a feature of the installed EFB device, and it provides some but not all of the same functions as the Class 3 bezel.

NOTE: A variety of manufacturers provide Class 2 EFB hardware solutions. *Appendix B—Class 2 EFB Operational Considerations* provides information about significant operational considerations that differ from the information provided in this chapter.



A typical Class 2 bezel

In addition to the bezel buttons supplied by the device, the Class 2 EFB provides a set of soft keys, which are simulated bezel buttons. Select the **SHOW** button at the top of the EFB display to view these keys. The **SHOW** button toggles to a **HIDE** button.



Class 2 MAIN MENU screen with displayed soft keys

Class 2 EFB bezels typically contain the following buttons.

Class 2 Bezel Buttons

Button	Name	Function
	POWER	Turns on the EFB.
	MENU	Displays the MAIN MENU screen.
	BACK	Moves the display back one level. NOTE: Some Class 2 EFB devices do not include a BACK button on the bezel. For more information see

Button	Name	Function
		Appendix B—Class 2 EFB Operational Considerations.

In addition to the bezel buttons provided on the device, the Class 2 EFB provides a set of soft keys, which work as simulated bezel buttons. Select the **SHOW** button at the top of the EFB display to view these soft keys. The **SHOW** button toggles to a **HIDE** button when the EFB displays the soft keys.

Class 2 EFB Soft Keys

Soft Key	Name	Function
	SHOW	Displays the soft keys.
	HIDE	Hides the soft keys.
	MENU	Displays the MAIN MENU screen.
	BACK	Moves the display back one level.
	PAGE UP	Moves one display length up within the currently displayed screen. If the screen is at the top or is less than one display length long, this button is inactive.
	PAGE DOWN	Moves one display length down within the currently displayed screen. If the screen is at the bottom or is less than one display length long, this button is inactive.
	ZOOM IN	Increases the magnification of the display. When an application's zoom levels are predefined, the application snaps the view to the size that most closely matches a defined zoom level.
	ZOOM OUT	Reduces the magnification of the display. When an application's zoom levels are predefined, the application snaps the view to the size that most closely matches a defined zoom level.

User Interface Standards

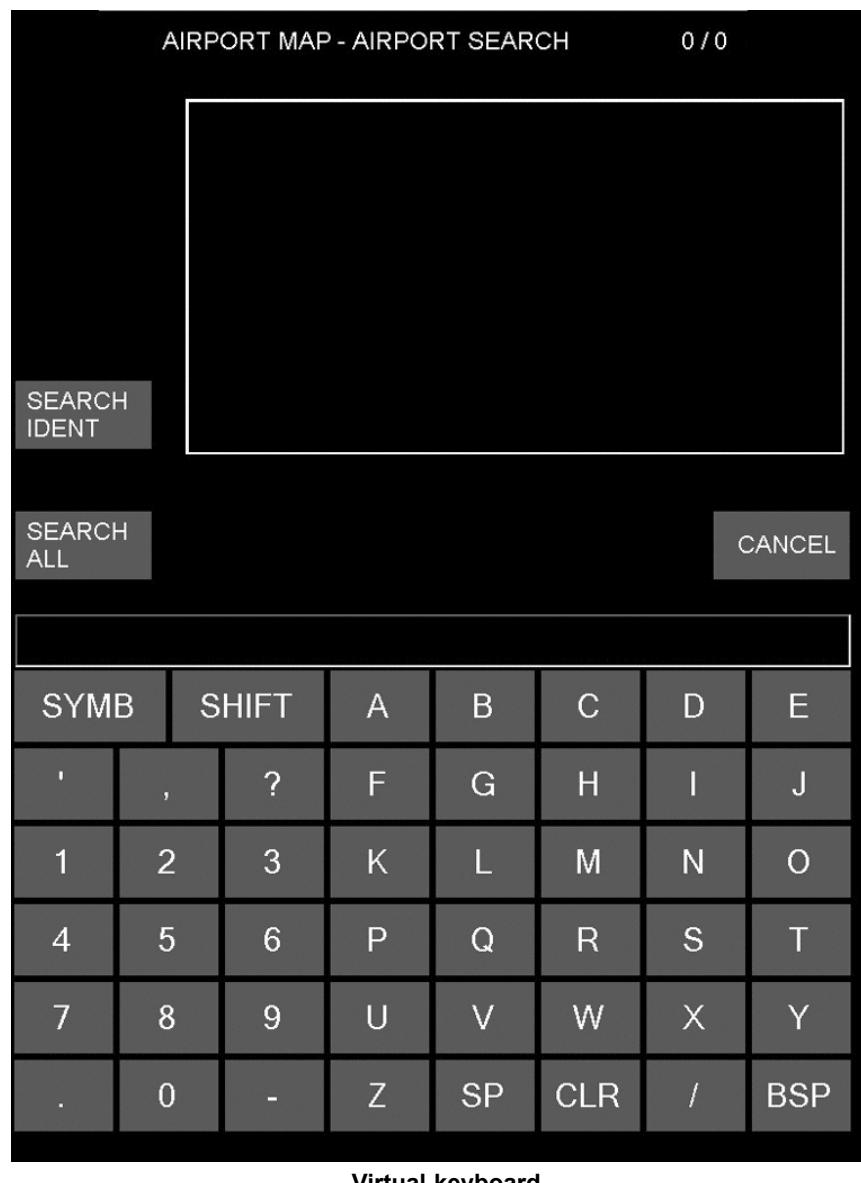
Although each application has a unique function on the EFB, all applications employ the following user interface standards:

User Interface Standards

Standard	Description
	Gray buttons indicate that a function is available for use.
	Gray buttons with white borders indicate that a function is in focus and will be activated if selected. NOTE: The border around these buttons is magenta for the Class 3 EFB systems on the 787.
	Blue- or cyan-outlined buttons indicate that a function is currently unavailable.
	Green buttons identify selected functions.
	White-outlined text fields indicate fields that are in focus. Begin typing to enter information in these fields.
	Amber-colored text indicates a caution or a failure.
	White-colored text indicates current data or good application status.
	Magenta-colored text indicates data that came from another source, such as the FMS.
	Red-colored text indicates a warning. Refer to your organization's documentation for applicable warnings.
	Green-colored text that replaces a pull-out (flyout) or drop-down menu label indicates the selected value.
	Green check marks or diamonds indicate selections.
	Magenta asterisks indicate required information.

Using the Virtual Keyboard

If a physical keyboard is not installed with your EFB, use the virtual keyboard to type information.



Virtual keyboard

In addition to using the letter and number keys, you can use the following special keys to make your entries:

- SYMB—Toggles between numbers and symbols.
- SHIFT—Toggles between uppercase and lowercase letters.
- SP—Adds a space.
- CLR or CLR FLD—Clears the entire field.
- BSP or BKSP—Backspaces one character at a time.

Initializing a Flight

Follow your airline's procedures to initialize your flight during pre-flight operations. Initializing a flight:

- Clears effectivity entries from the IDENT page.
- Clears entries from the SYSTEM FAULT LOG.

- Extinguishes FAULT annunciations.
- Sends a signal to each EFB application to notify them that the flight has been initialized.

For information about the specific data that each application gathers during flight initialization, see the section related to the particular application. It is normal for applications to become temporarily unavailable during flight initialization

Your aircraft must be on the ground before you can initialize a flight.

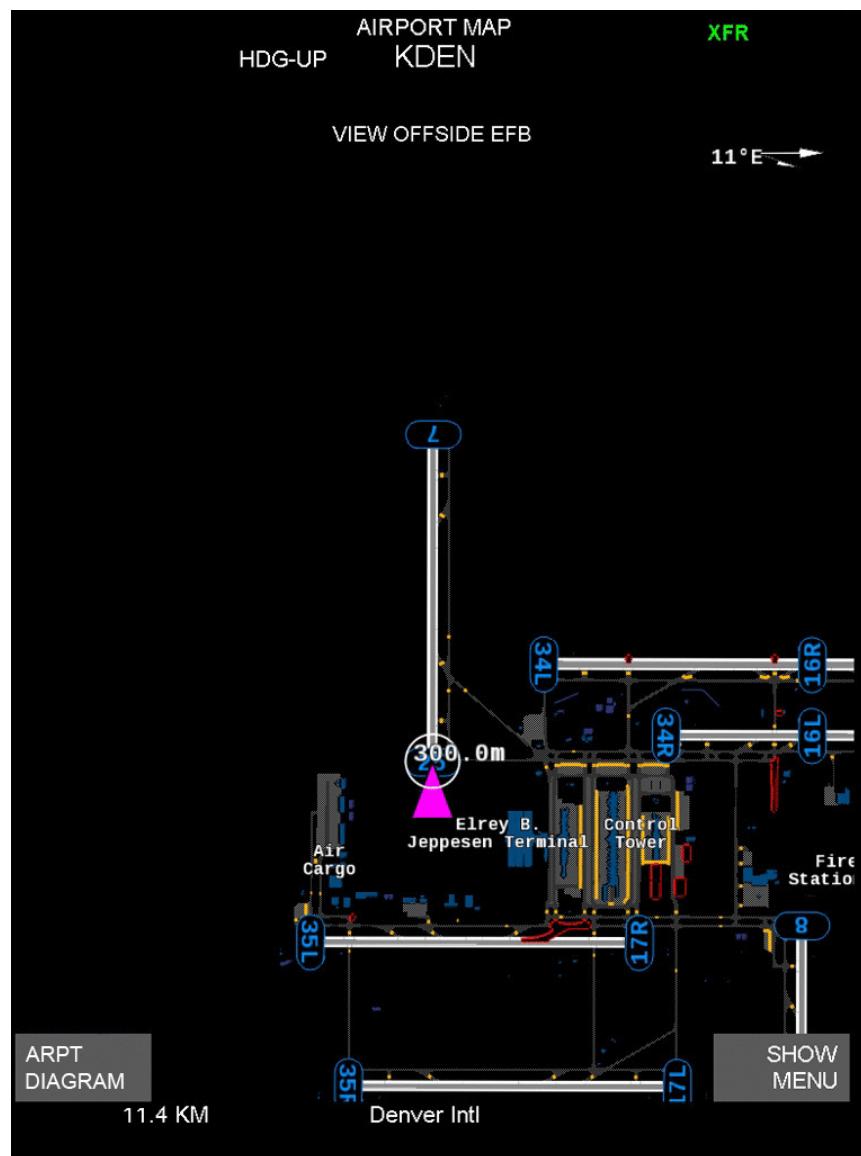
To initialize your flight:

From the MAIN MENU screen, select **INITIALIZE FLIGHT**. After you initialize the flight, this button changes to **CLOSE FLIGHT**.

NOTE: If you do not see the **INITIALIZE FLIGHT** button, your flight has already been initialized or the previous flight is still in progress. If the in-progress flight is the previous flight, it must be closed before you can initialize your flight. Depending on your organization policies, you might be responsible for closing your flights. For more information about closing a flight, see the “Closing a Flight” section.

Viewing the Offside EFB

Your organization might require you to view the same information as the other pilot in the cockpit. If so, you can use the “offside communication” feature to view the screen of another EFB.



Viewing the offside EFB

To view the offside EFB:

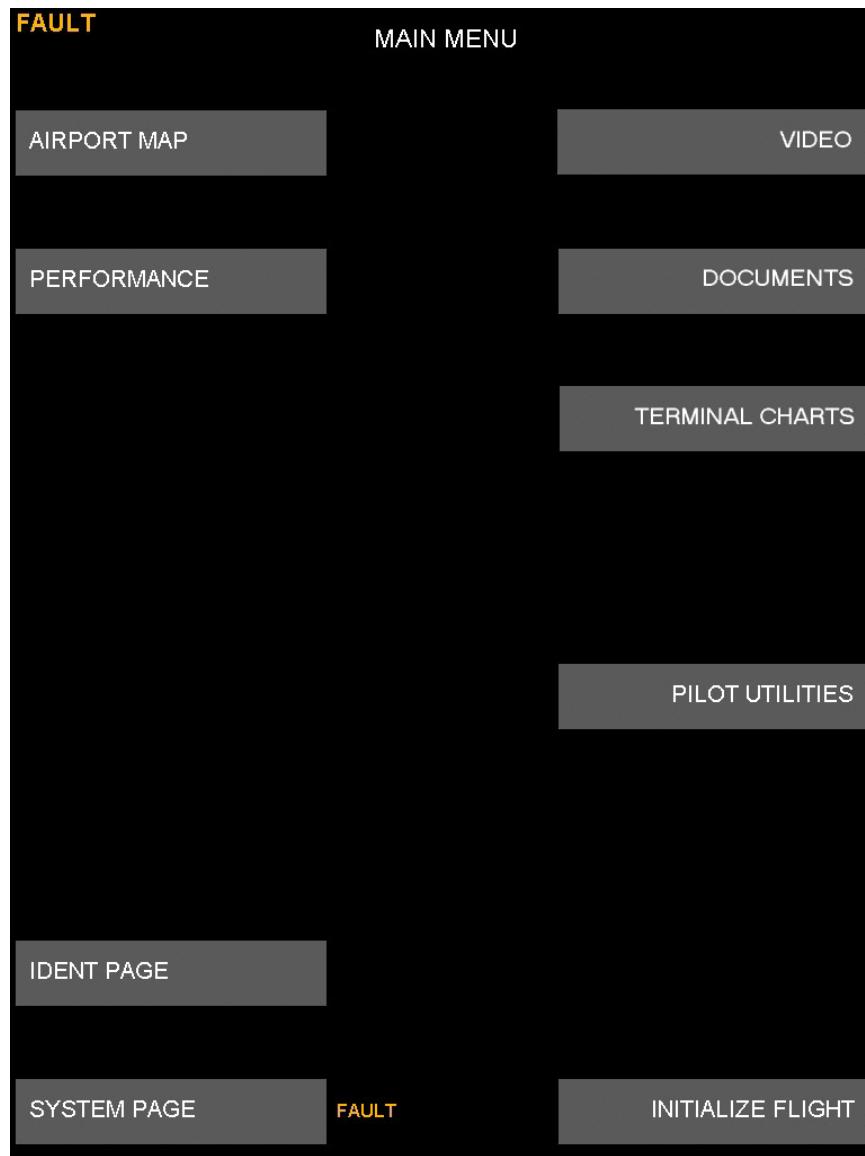
From any screen, select the **XFR** bezel button.

The XFR indicator at the top right of the screen indicates that the system is in transfer mode. You cannot manipulate the offside EFB screen.

Select the **XFR** bezel button to close transfer mode and return to your EFB screen.

Viewing Faults and MEMO Notifications

If an application reports a fault or requires attention, the EFB displays visual cues in the top left corner of the active screen. This indicator is a signal to you to return to the MAIN MENU.



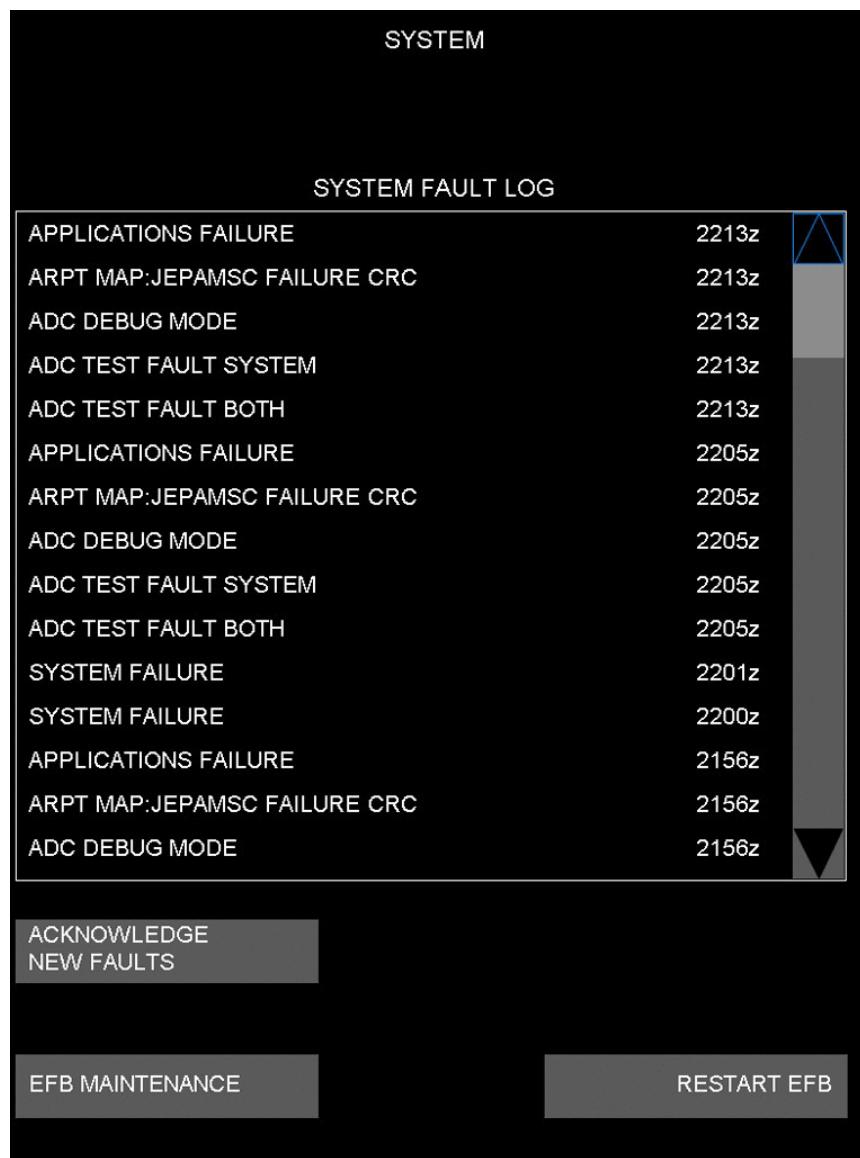
FAULT notification on the MAIN MENU screen

On the MAIN MENU screen:

- If an application needs your attention, a MEMO indicator appears next to the button of the affected application. Open the application to address the issue.
- If a fault has occurred, a FAULT indicator appears next to the **SYSTEM PAGE** button on the MAIN MENU. Select the **SYSTEM PAGE** button to view more information about the FAULT.

Viewing Fault Information

From the MAIN MENU screen, select the **SYSTEM PAGE** button to view the SYSTEM FAULT LOG, which contains a list of reported faults.



SYSTEM FAULT LOG screen

This screen provides a scrollable list of all faults by application or part, and it displays the time at which the fault occurred and the fault description (for example, VIDEO CONFIG FILE INVALID).

If this screen displays a scroll bar on the right, use it to view additional faults. New faults appear at the top of the list.

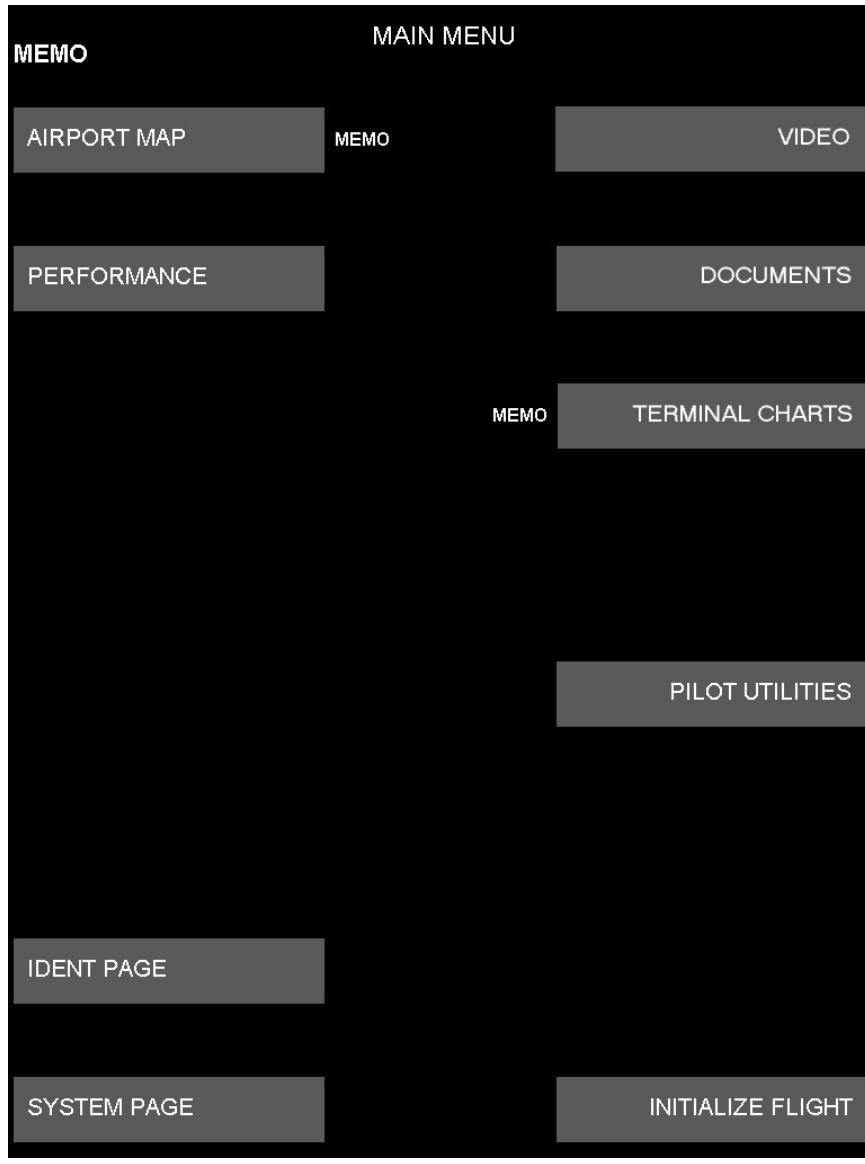
The EFB follows a specific format for displaying faults:

- Faults that you have not yet acknowledged are white.
- Faults that you have acknowledged are blue.

Depending on your organization's settings, you might acknowledge faults after you review them. Selecting **ACKNOWLEDGE NEW FAULTS** removes the FAULT notification next to the **SYSTEM PAGE** button on the MAIN MENU. As the EFB records additional faults, it displays them in white and displays the FAULT indicator again.

Viewing MEMO Notifications

When applications require attention, the EFB displays a MEMO notification.



MEMO notifications on the MAIN MENU screen

From the MAIN MENU screen, select the button of the application that is reporting the MEMO to view the notification.

After you access the application, follow the on-screen instructions to resolve the issue or close the MEMO. Reference each application's section for information about addressing MEMO notifications.

NOTE: If the MEMO indicates a database effectivity issue, refer to the section that describes that application and follow your organization's guidelines for addressing database effectivity issues.

Verifying Part Numbers and Effectivity

From the MAIN MENU screen, select the **IDENT** button to open the IDENT screen and verify part numbers and their associated effectivity dates. If a part has expired, it is indicated in amber.



Viewing loaded database parts and their effectivity dates

In addition to viewing part numbers and effectivity, you can also reference aircraft model number (A/C MODEL), tail identifier (TAIL ID), and date and time information on this screen. On the Class 2 EFB, this screen also displays the engine type (ENGINE).

Closing a Flight

Depending on your organization's policies, you might be responsible for closing your flight. On flight close, the EFB deletes flight-specific information from memory and concludes the flight.

To close your flight:

From the MAIN MENU screen, select **CLOSE FLIGHT**.

NOTE: If the MAIN MENU screen does not display the **CLOSE FLIGHT** button, the flight is already closed.



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AIRPORT MOVING MAP

The Airport Moving Map (AMM) application acquires data from the airplane's 429 data bus to indicate airplane position and heading on dynamic airport maps. The application's high-resolution maps graphically portray runways, taxiways, and other airport features to support taxi or taxi-related operations. Using these maps to monitor airplane position within an airport's boundaries can improve crew positional awareness and help crews prevent runway incursions. This application operates on the Boeing Class 2 and Boeing Class 3 EFB.

AMM is sold as an "incomplete system." It cannot run independently from the Boeing EFB software, which provides the framework for the AMM application, the interface to the airplane, and the interaction with other integrated applications.

NOTE: Although the AMM application acquires position and heading information from the airplane, it is not a guidance system and is not intended to replace outside visual references for progress monitoring. The application can enhance your positional awareness, but it does not provide all of the information you need during taxi and other ground operations. For example, it does not indicate the position of other aircraft or vehicles on the ground. You should not rely solely on AMM to establish your airplane's position or initiate or terminate a turn.

Pilots use AMM to perform the following tasks:

- Orient the flight crew to the airplane's position in relation to runways, taxiways, and airport structures
- Use external visual references to identify airplane position in relation to runways and taxi holding points, a taxiway where a turn is required, or the location of a specific parking spot or gate
- Correlate taxi clearance with taxi planning
- Monitor the taxi progress and direction along the cleared route and correlate outside visual references and airport markings and signage with the AMM map

AMM recognizes two phases of flight: on-ground taxi and airborne. The taxi phase ends as soon as the airplane accelerates beyond 40 knots, and it begins again after the airplane lands and decelerates to 38 knots or less.

NOTE: Some data elements on the screen shots in this document might not be provided in all releases of the AMM software.

Using the AMM Application

The AMM application exhibits the following standard EFB behavior:

- To launch the application, select the application button on the MAIN MENU screen. Your organization defines the text of the button label.
- To exit the application, select the **MENU** bezel button to return to the MAIN MENU screen.
- To view system messages (indicated by MEMO or MSG notifications), select the application button on the MAIN MENU screen. The application displays the appropriate message.

Follow the on-screen instructions to acknowledge or resolve each MEMO notification.

- To view application faults, open the SYSTEM FAULT LOG screen. The application also displays some on-screen fault notifications during flight under certain conditions. For more information, see the "Troubleshooting" section.

Working with Effective Data

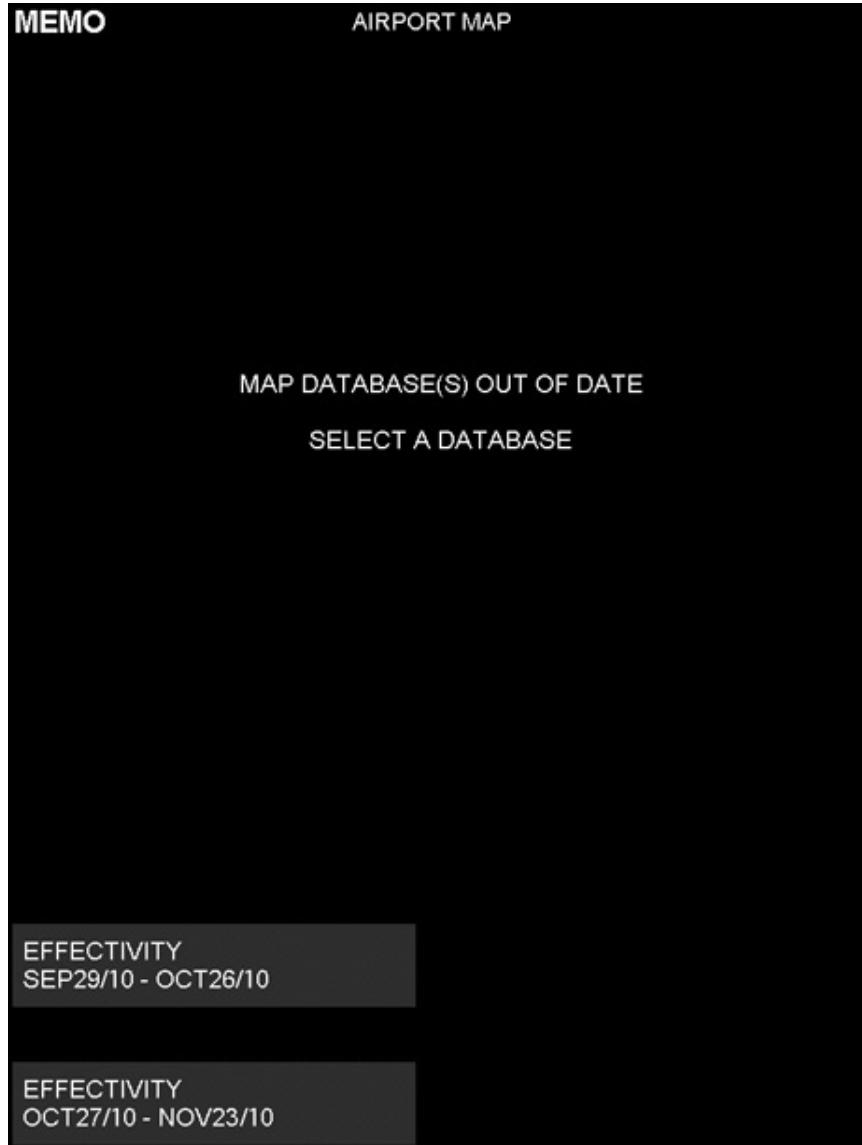
AMM acquires its map information from an AMM database, which your organization installs as a part onto the Class 2 or Class 3 EFB. The content of the AMM database depends on the coverages that are included in your organization's data subscription. Jeppesen releases updated AMM data every 28 days based on the ARINC cycle.

AMM databases are associated with a date upon which the database becomes effective. This date is the database *effectivity* date. The EFB can support up to two AMM databases with different effectivity dates at one time, but the effectivity dates should not overlap. If date ranges do overlap, AMM reports a fault.

If the overlap causes both databases to be effective on the current date, the application shuts down. If the databases are not effective on the current date, the application reports the overlap and makes the current database active.

Upon flight initialization, the AMM application automatically selects the currently effective (or active) database according to the database effectivity date and the flight start date as reported by the EFB.

In some cases, both databases might be out of date, a database might be corrupt, or one database might be effective at flight start date and the second database might be effective later in the flight. In such cases, the application displays a MEMO notification upon flight initialization and prompts you to select the active database.



Application prompting the user to select the active database

WARNING: If neither database is effective during the flight date range, you can still fly, but you should follow your organization's procedures to update your database. You should not fly with outdated data.

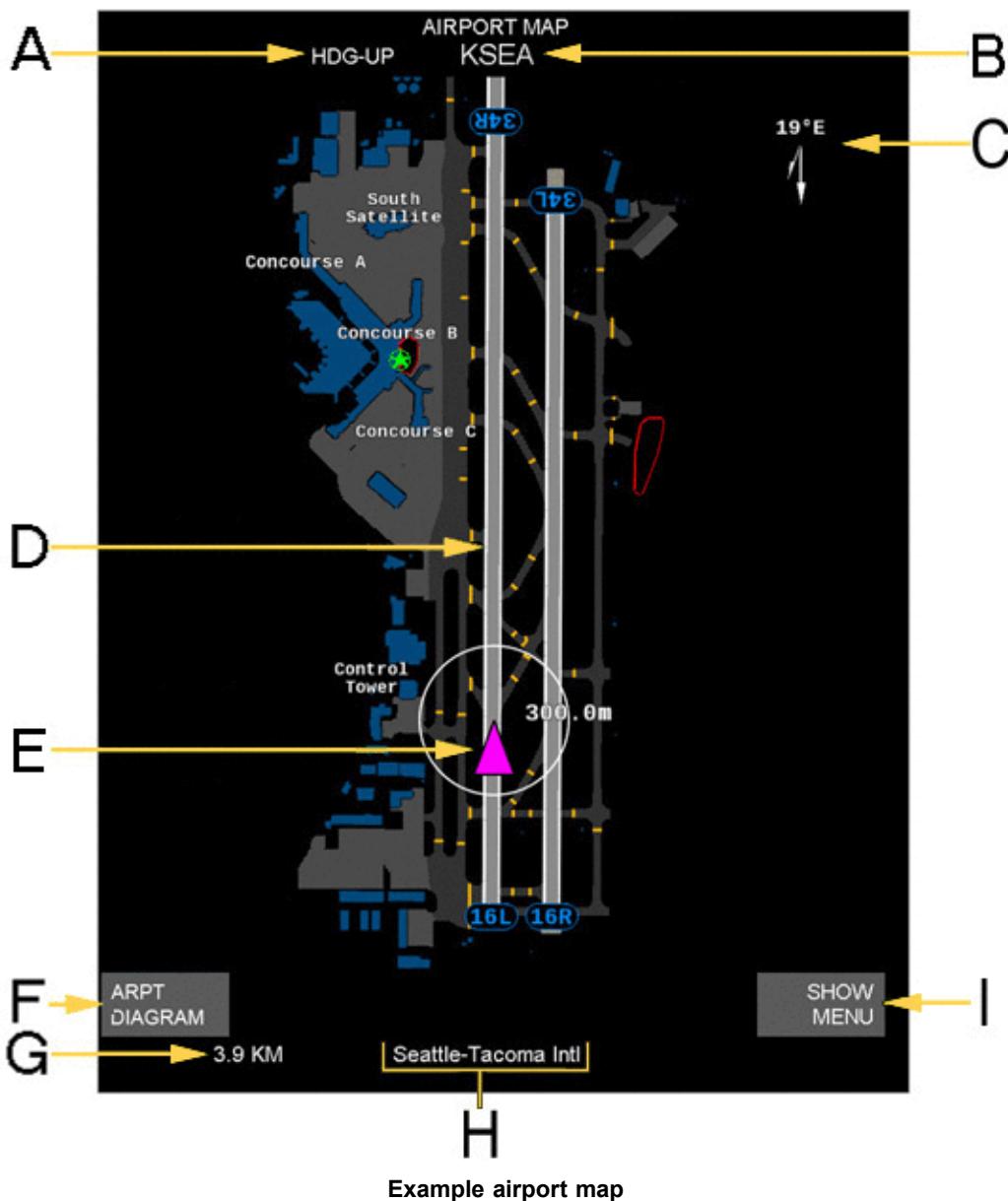
Selecting the Effective Database

The AMM application selects the effective database automatically whenever possible. If you are prompted to select the effective database, select it from the list of available databases.

After you select a database, you cannot modify your selection without initializing the flight again.

Features of AMM

The focus of the AMM application is the airport map.



The following table describes the AMM user interface elements:

AMM User Interface Elements

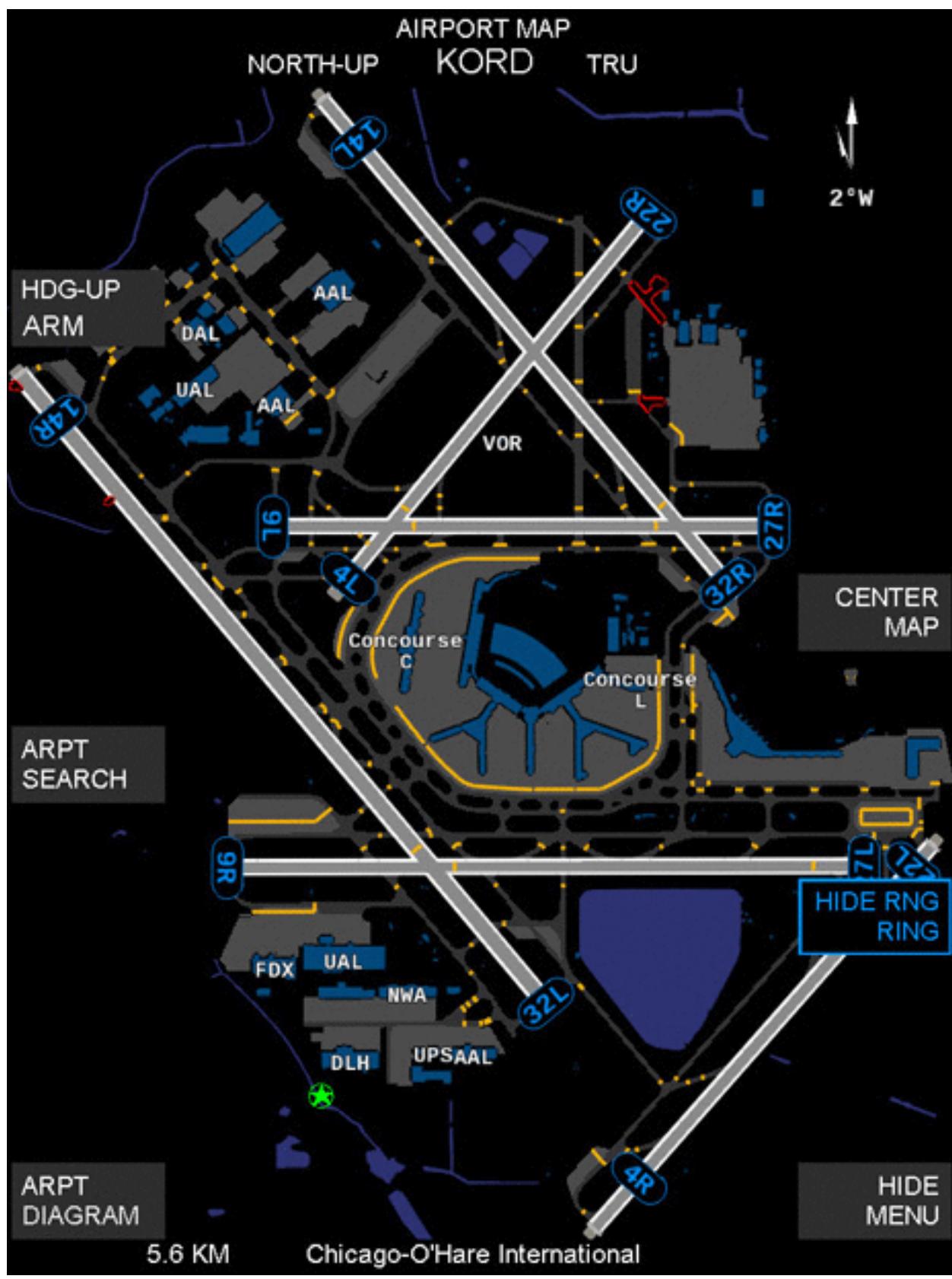
Callout	Description	Function
A	Map orientation	The HDG-UP or NORTH-UP text indicates map orientation.
B	Airport ICAO or IATA identifier	The identifier indicates the current airport.

Callout	Description	Function
C	Compass rose	The pointer on the compass rose indicates north. If the airplane is in heading-up orientation, the compass rose also indicates the current heading direction. The degrees information associated with the compass rose indicates the difference between true and magnetic north.
D	Taxiway designators	These designators indicate taxiways and routes. Use them to visually follow taxi route clearances issued by ATC or determine the taxi route to the runway or to the terminal.
E	Own-ship symbol	<p>AMM displays a directional own-ship symbol, which has a triangular shape, when valid own-ship position and heading information is available. If position information is valid but heading or ground-speed information are not available, the application displays a nondirectional own-ship symbol, which has a circular shape.</p> <p>The own-ship symbol indicates the location of the airplane on the map. The airplane must be on the ground and traveling at a predetermined speed to show the own-ship symbol.</p> <p>For more information about the circumstances under which the application displays the own-ship symbol, see the “Using the Own-ship Symbol” section.</p>
F	ARPT DIAGRAM button	<p>Your organization might configure the EFB so that the LSK swap feature is enabled. When LSK swap is enabled, the AMM and Terminal Charts applications are linked, enabling you to switch between AMM and Terminal Charts without returning to the MAIN MENU screen. If this feature is enabled, select the ARPT DIAGRAM button to view the terminal chart for the current airport if you are on the ground or the destination airport if you are airborne. From the Terminal Charts application, select the AIRPORT MAP button to return to AMM.</p>

Callout	Description	Function
G	Distance scale	The numbers indicate the total distance from the top to the bottom of the screen at the current zoom level.
H	Airport name	This text is the full name of the current airport.
I	SHOW MENU button	This button displays the available menu options. When you select it, the label on this button changes to HIDE MENU and various menu options overlay the map.

Using the AMM Menu Options

Select the **SHOW MENU** button to view the available menu options, which overlay the map. Menu options vary depending on map orientation and context. For example, when you are viewing the destination airport in north-up orientation, menu options might include HDG-UP ARM, CENTER MAP, ARPT SEARCH, and ARPT DIAGRAM. When the map is showing menu options, the label on the SHOW MENU button changes to HIDE MENU.



AMM can display the following menu options:

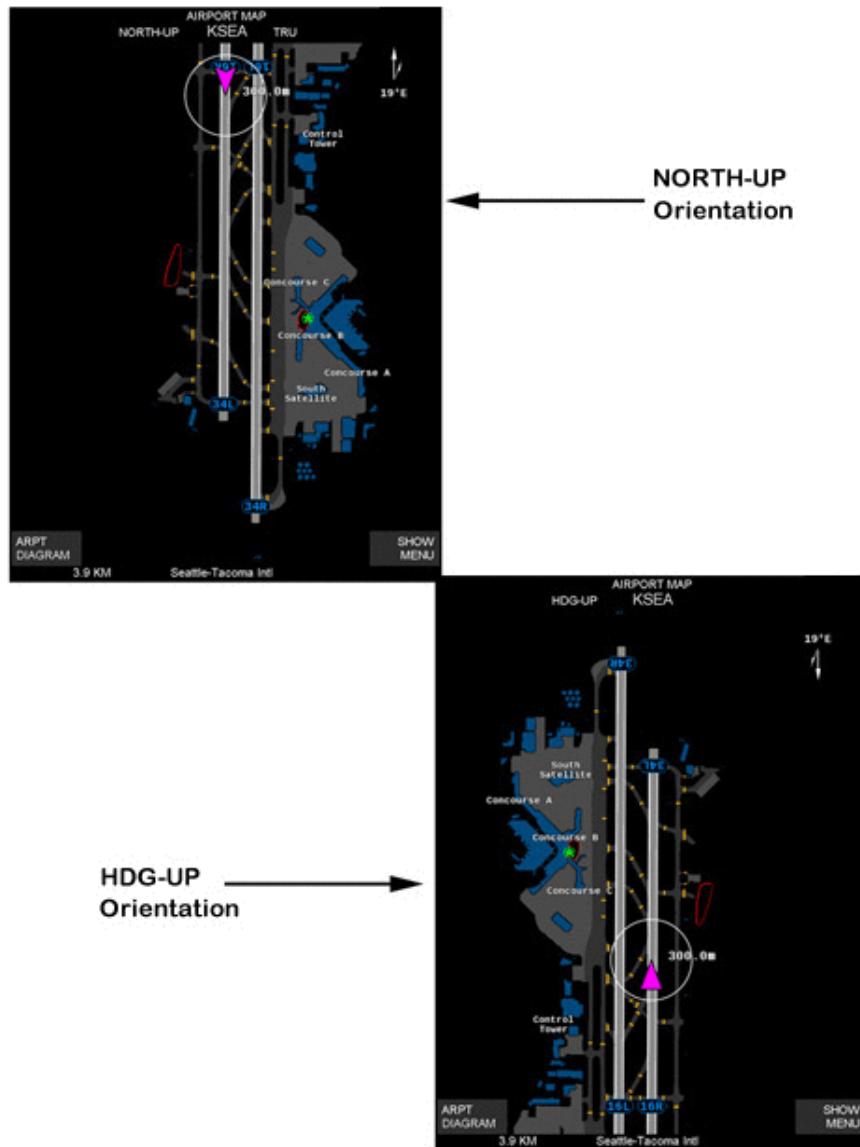
Menu Options

Option Button	Description
Heading indicator (HDG-UP Map and NORTH-UP Map)	This option changes the map orientation, depending on your location, the phase of flight, and other conditions.
ARPT SEARCH	This option enables you to search for an airport. For AMM to locate an airport, the airport must be in the active database.
CENTER A/C	This option repositions the map so that the own-ship symbol is in the middle of the screen when the AMM map is positioned in north-up orientation.
CENTER MAP	This option centers the map within the screen when the AMM map is positioned in north-up orientation and the airplane is airborne.
Airport switch button	This option enables you to toggle between airport maps. For more information, see the “Viewing the Map for the Other Airport in the Flight Plan” section.
HIDE RNG RING	This option hides the range ring around the own-ship symbol. AMM does not display this menu option if the own-ship symbol is not showing.
SHOW RNG RING	This option displays the range ring around the own-ship symbol. The application can display the range ring in north-up or heading-up orientation. AMM does not display this menu option if the own-ship symbol is not showing.
CANCEL MSGs	This option prevents AMM from showing fault notifications on the screen.
RECALL MSGs	This option sets AMM to display fault notifications on the screen.
HDG-UP ARM	This option sets AMM to display the destination map in heading-up orientation automatically when you land and the application recognizes the airplane’s weight-on-wheels (WOW) state. After selection, the label on this button changes to HDG-UP ARMED. For more information about arming, see the “Arming AMM” section.

Understanding Map Orientation

The application displays the map in the following orientations:

- Heading up (HDG-UP)—Orients the map in relation to the airplane’s heading. Heading-up orientation provides a consistent frame of reference by moving the map according to airplane position and heading. When the application displays the own-ship symbol, the symbol takes on directional form if valid heading and ground-speed data are available. The own-ship symbol takes on nondirectional form if no valid heading or ground-speed data is available. The application maintains the own-ship symbol in a fixed position on the screen and moves the map as the airplane moves. The EFB must receive valid position, heading, and ground speed input to use heading-up orientation. You cannot view the map in heading-up orientation when you are airborne.
- North up (NORTH-UP)—Orients the display so that the top of the map points north. Typically, pilots use this orientation for planning purposes. When the application displays the own-ship symbol, the symbol takes on directional form. The application maintains the map in a north-up orientation as the own-ship symbol moves and rotates. Your organization determines whether north-up is oriented to true north (TRU) or magnetic north (MAG). You can view the map in north-up orientation regardless of your location or phase of flight. This orientation is the default orientation when you are airborne.



Map orientations

- **Frozen**—Freezes the heading-up map in its current view with no own-ship symbol when valid position, heading, or ground speed are not available; aircraft position is not within the map boundaries; or actual system performance (ASP) is not sufficient.

To change orientation:

1. If necessary, select **SHOW MENU** to display the available menu options.
2. Select the appropriate orientation button (**NORTH-UP MAP** or **HDG-UP MAP**).

Using the Own-ship Symbol

For AMM to indicate airplane position, the airplane must be on the ground and traveling at a predefined speed, and the application must be able to communicate with the airplane's avionics. This communication provides airplane position, heading, ground speed, weight-on-wheels (WOW) state, and destination airport. As the application predicts the airplane's path, it verifies that the airplane's coordinates (as reported by system data) match the predicted coordinates before it updates the position of the own-ship symbol. When the GPS update rate is low, the application uses the airplane's ground speed and heading information from the Air Data Inertial Reference Unit (ADIRU) to interpolate the airplane's position between GPS updates.

Initially, the airplane must be traveling at fewer than 40 knots to show the own-ship symbol. If the airplane exceeds 40 knots and then slows again, the own-ship symbol reappears when the airplane is traveling at 38 knots. This behavior enables the airplane to undergo random changes in speed that would cause the own-ship symbol to flicker on and off.

Depending on map orientation and position information, the AMM application can display one of three own-ship symbols:

Own-ship Symbols

Symbol	Name	Description
	Directional	The symbol base indicates heading-up orientation. The symbol apex indicates airplane position.
	Directional	The symbol base indicates north-up orientation. The symbol apex indicates airplane position.
	Nondirectional	The symbol indicates position when the application loses airplane heading data. The symbol center indicates estimated position.

If your airplane loses own-ship position information, follow your organization's established processes for proceeding without AMM position data. The application does not display the own-ship symbol under the following circumstances:

- You are viewing a map of an airport at which you are not located.
- The airplane is moving at a speed of 40 knots.
- Actual system performance (ASP) does not meet required system performance (RSP) because accuracy has dropped below 40 meters. (Accuracy depends on satellite geometry, the integrity of the GPS signal, and system latencies that depend on ground speed.)
- The application cannot receive a valid own-ship position from the airplane GPS. If this fault occurs, AMM displays a “GPS DATA” fault notification at the bottom of the screen. The fault notification disappears when connectivity is re-established. See the “Troubleshooting” section for more information.
- The application cannot receive valid heading or ground speed data from the Air Data Inertial Reference Unit (ADIRU). If this fault occurs, AMM displays an “ADIRU DATA” fault notification at the bottom of the screen. The fault notification disappears when connectivity is re-established. See the “Troubleshooting” section for more information.

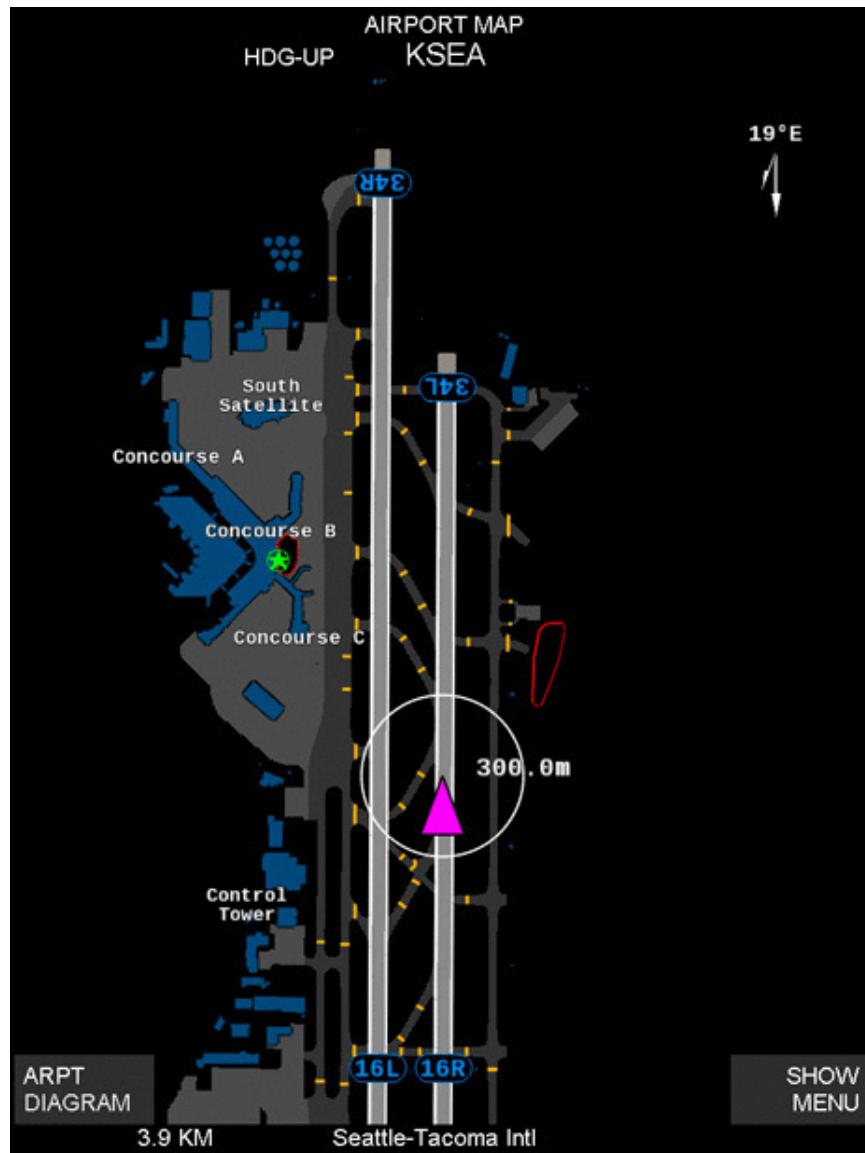


AMM reporting data-connectivity faults

Displaying an Airport Map

After the EFB initializes your flight and acquires your origin and destination airport information, you can view a map at any time. When you select the AMM application button from the MAIN MENU screen, the initial screen that the application displays depends on the location of the airplane.

- Map in heading-up orientation—AMM displays the map for the current airport in heading-up orientation when the airplane is on the ground and the current airport is in the active database.
- Map in north-up orientation—AMM displays the map for the destination airport in north-up orientation when the airplane is airborne and the destination airport is in the active database.
- AIRPORT SEARCH screen—AMM displays the AIRPORT SEARCH screen under a variety of conditions, including when the airplane is airborne and the destination database is not in the active database, when the airplane is on the ground and the current airport is not in the active database, when the plane is on the ground outside an airport's boundaries, and when the application is unable to determine current position.



KSEA in heading-up orientation

You can view the map for the current airport, switch to the other airport in your flight plan, and search for and view the map for another airport in your database. All AMM maps portray the following elements.

AMM Map Elements

Symbol	Description
	Airport beacon
	Apron-ramp identifier
	Blast pad
	Closed/displaced threshold

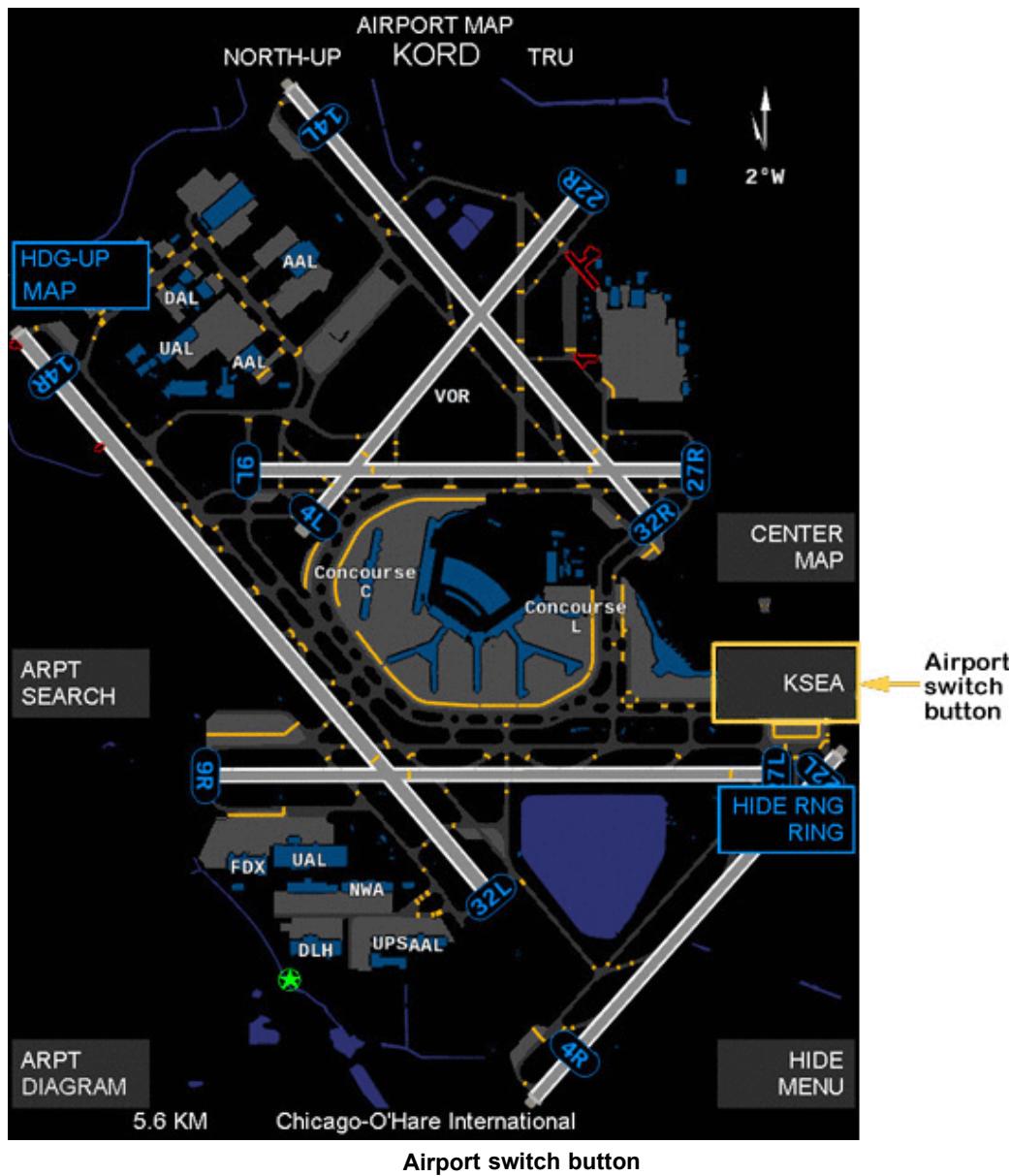
Symbol	Description
	Closed runway
	Concourse identifier
	Construction area or closed taxiable surface
	Gate identifier
	Group helicopter landing area
	Helicopter landing area
	Hold line or land-and-hold-short-operations (LAHSO) hold lines
	Ramp area
	Runway
	Runway identifier
	Runway threshold
	Taxiway identifier
	Vertical structures

Viewing the Map for the Current Airport

If you are on the ground, AMM displays the map of the current airport by default when you access the application.

Viewing the Map for the Other Airport Reported by the FMS

Use the airport switch button to toggle between airport maps.



Airport switch button

If the airplane is on the ground, AMM displays the map of the airport at which you are currently located. If you view a map for a different airport, use the airport switch button to return to the map of the airport at which you are currently located. For example, if the airplane is on the ground in Seattle (KSEA) and you are viewing the map for Chicago (KORD), the airport switch button displays the KSEA ICAO identifier, enabling you to return to the KSEA airport map at any time.

After the airplane is airborne, the airport switch button displays the ICAO of the destination airport as reported by the FMS if the destination airport is in the active AMM database. When you are airborne and choose to view an airport other than the origin, you cannot use the airport switch button to return to the origin.

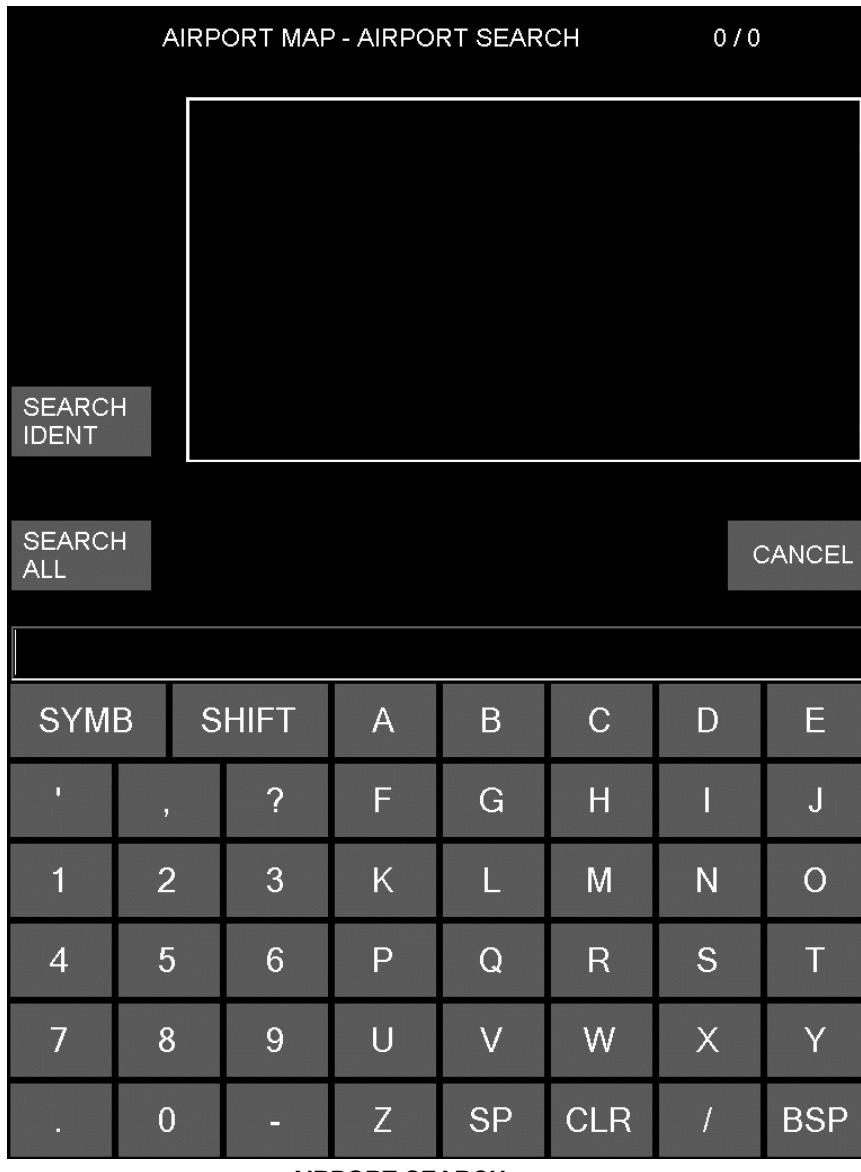
Searching for and Viewing the Map for Any Airport in the Database

Use the airport search feature to search for airport maps. Search strings for potential airports can include ICAO or IATA airport identifiers, airport names, or city names. You need this capability to handle a diversion.

NOTE: If no airports have been defined for your flight, the application displays the AIRPORT SEARCH screen when you access the AMM application.

To search for an airport from the current map:

1. If necessary, select **SHOW MENU** to display the available map options.
2. Select **ARPT SEARCH**.

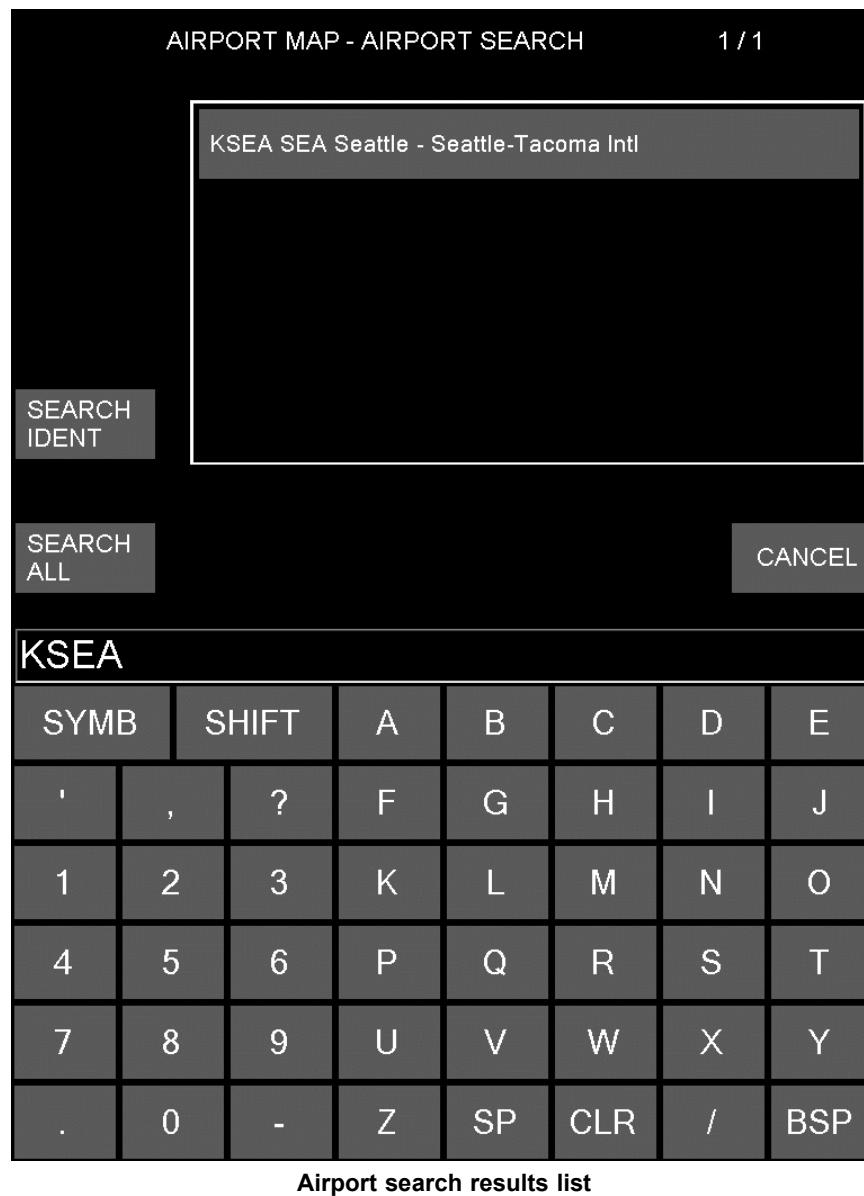


AIRPORT SEARCH screen

3. Use the virtual keyboard to type the first few characters of the airport identifier (ICAO or IATA), airport name, or airport city name into the search field.
The more characters you enter, the more refined the search.
4. Select the appropriate search button.
 - Select **SEARCH IDENT** to search only by ICAO or IATA identifier.

- Select **SEARCH ALL** to search by ICAO or IATA identifier, airport name, or airport city name.

The system retrieves and displays the airports that match your search criteria. If the list contains more than three airports, use the **PGUP** and **PGDN** bezel buttons to scroll through it.



5. Select the airport from the search results list.

The application displays the map for the selected airport.

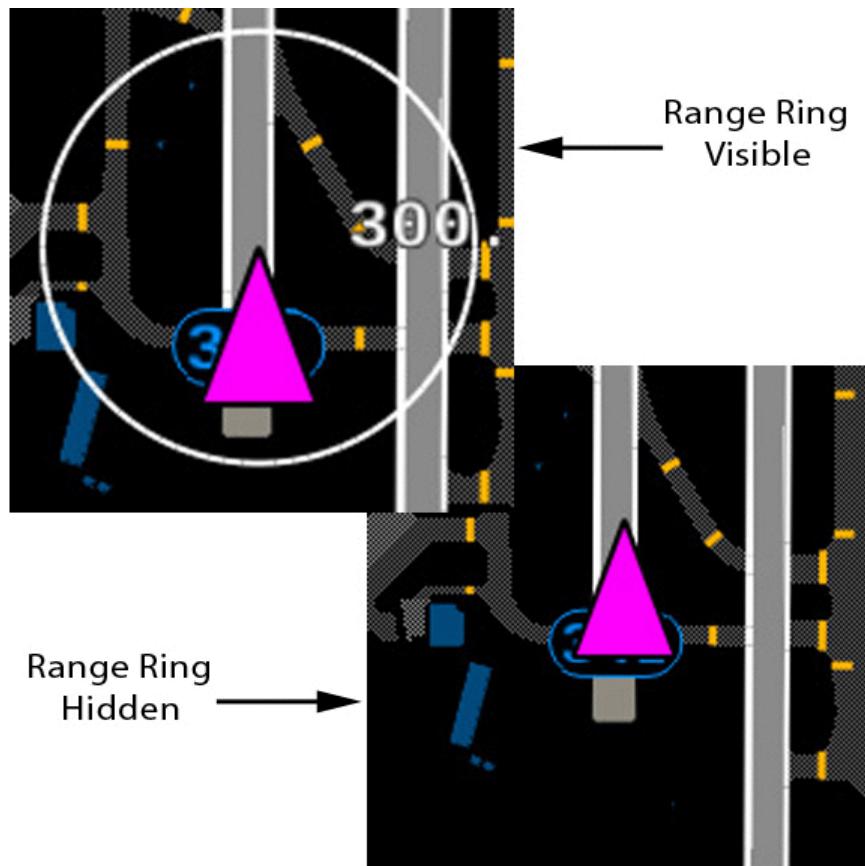
Manipulating the Map

The following tools are available regardless of map orientation or airplane position:

- Use the **ZOOM IN** and **ZOOM OUT** bezel buttons to change the range of the map display. Range is measured from the bottom to the top of the map view area. The range scale is in nautical miles (nm) or kilometers (km). The number of available zoom levels can include 0.5 nm (1 km), 1 nm (2 km), 2 nm (4 km), 3 nm (6 km), 4 nm (8 km), 5 nm (10 km), and To Fit. Larger airports typically have more zoom levels than smaller airports. The application displays the current range at the bottom of the screen, and each zoom level determines the number and types of details the map displays. Runway

identifiers are initially placed at the runway ends, but they move to stay in view as you zoom or pan the map. As you zoom in to a 0.5 nm (1 km) range, concourse labels are replaced by gate labels. The application might remove some redundant taxiway identifiers to declutter the map as you zoom in. After flight initialization, every map initially appears at the To Fit level.

- When you are on the ground and viewing the map for the current airport and the own-ship symbol is present, select **SHOW RNG RING** to display a range ring around the own-ship symbol. The range ring provides a visual sense of map scale to give you a rough idea of distance. In addition, the larger the circle, the greater the zoom level of the map. Your organization determines the range ring scale (feet or meters) and radius (for example, 300 m). Select **HIDE RNG RING** to hide the range ring.



Range ring on and off in heading-up orientation

- Use the heading indicator to change map orientation. From north-up orientation, select **HDG-UP MAP** to switch to heading-up orientation. For the application to switch to heading-up orientation, the airplane must be on the ground within the airport boundaries, the current airport map must be in the active database, and the application must have valid heading, position, and ground speed information from the airplane. From heading-up orientation, select **NORTH-UP MAP** to switch to north-up orientation at any time and in any phase of flight.

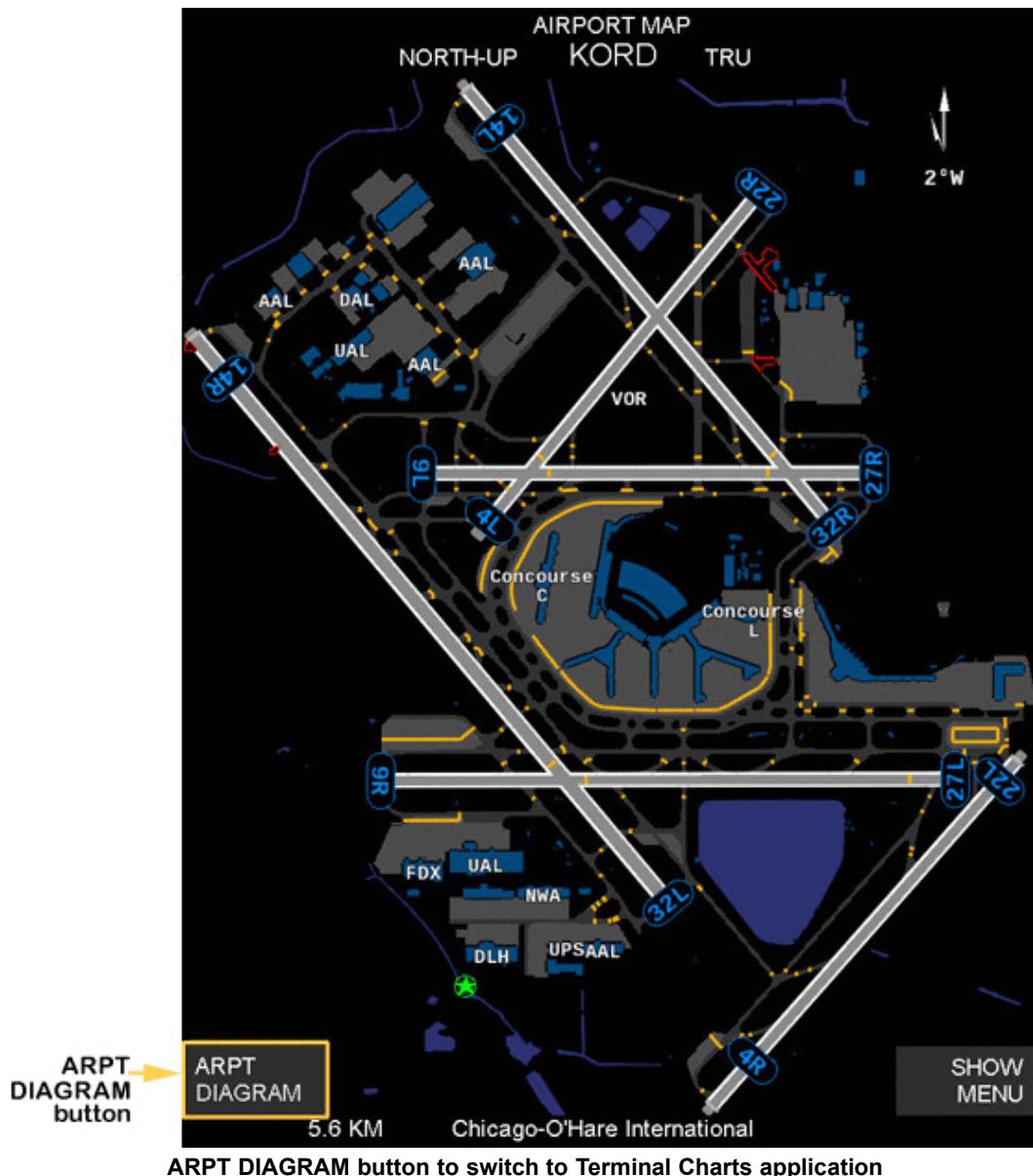
Some tools are available only in north-up orientation:

- Drag your finger across the EFB screen to pan the map up, down, left, or right. You can pan the image until a map boundary is in the center of the display. For example, to see an area of the map that is further down in the display, touch the screen and drag your finger up the screen to bring it into view. To see an area of the map that is to the right, touch the screen and drag your finger to the left to bring the area into view.
- Select **CENTER A/C** to reposition the map so the own-ship symbol is centered on the screen. The own-ship symbol can move away from the center of the screen after you select this button.

- Select **CENTER MAP** to center the map on the screen.

Viewing the Terminal Chart for the Current Airport

If your organization configures the EFB so that the LSK Swap feature is enabled, the AMM and Terminal Charts applications are linked, enabling you to switch between AMM and Terminal Charts without returning to the MAIN MENU screen. If your organization enables the LSK Swap function, use the **ARPT DIAGRAM** button to access the Terminal Charts application directly from AMM. If this feature is not enabled, the button is disabled.



Before you can view an airport's terminal charts, the Terminal Charts application must be installed on your EFB and the airport must be included in your Terminal Charts chart clip. If the airport is not part of your chart clip, the AMM application disables the **ARPT DIAGRAM** button.

To view the Terminal Charts airport diagram (10-9 chart) for the current airport from AMM:

1. Locate and view the airport in AMM.
2. Select **ARPT DIAGRAM** to switch to the Terminal Charts application and view the main airport chart.
3. Select **ARPT MAP** to return to the AMM application.

AMM displays the map in the same orientation and at the same zoom level that it was in before you accessed the Terminal Charts application.

Arming AMM

If your organization enables the AMM arming feature, you can set the AMM application so that it automatically displays the map of the destination airport in heading-up orientation upon landing, ensuring that you do not need to manually switch orientations. The destination airport must be in the active database.

- On the Boeing Class 2 EFB, arming AMM enables the EFB to switch to the AMM application from any other EFB application upon landing. In addition, it enables the ability to switch to heading-up orientation from any other AMM screen upon landing.
- On the Boeing Class 3 EFB, arming AMM enables the EFB to switch to the AMM application from any other Windows EFB application upon landing.

You cannot enable the HDG-UP Arm feature when the airplane is on the ground. The airplane must be airborne.

To arm AMM:

1. View the destination airport while the airplane is airborne.
 2. If necessary, select **SHOW MENU** to display the available map options.
 3. Select **HDG-UP ARM**.
-

NOTE: Depending on your organization's configuration settings, the application might not display AMM on the EFB upon landing.



AMM is set for arming

You can zoom in on an airport to set the zoom level before or after you arm AMM.

To disable AMM arming:

1. View the destination airport while the airplane is airborne.
2. If necessary, select **SHOW MENU** to display the available map options.
3. Select **HDG-UP ARMED**.



Troubleshooting

The application displays on-screen fault notifications for temporary faults such as communication issues. If these faults become persistent, the application logs them to the system fault log with the other application faults. You can hide on-screen fault notifications.

To hide fault notifications:

1. If necessary, select **SHOW MENU** to display the available map options.
2. Select **CANCEL MSGs**.

To view fault notifications again, select **RECALL MSGs**.

AMM might display the following fault notifications during flight:

- ADIRU DATA—Indicates that Air Data Inertial Reference Unit (ADIRU) heading or ground speed data

is invalid or unavailable. The application might display this fault notification during ADIRU alignment, but the fault should clear. During normal operation, this fault indicates a failure condition that did not correct itself during flight. If AMM is in heading-up orientation, it removes the own-ship symbol and the map stops moving. If AMM is in north-up orientation and has lost only the heading information from the ADIRU, it displays the nondirectional own-ship symbol. If the application also loses ground speed data, it removes the own-ship symbol. The fault notification disappears when connectivity is re-established.

- **GPS DATA**—Indicates that AMM is unable to validate the GPS position for a defined period. Usually, this fault is caused by persistent hard failure of the multi-mode receiver (MMR) or the communication link between the MMR and the EFB. The application also displays this fault notification when satellite interference causes nonpersistent invalid position data. If AMM is in heading-up orientation, it removes the own-ship symbol and the map stops moving. If AMM is in north-up orientation, it removes the own-ship symbol and disables the **HDG-UP** button. If AMM is airborne, it disables the HDG-UP Arm feature. The fault notification disappears when connectivity is re-established.
- **UNABLE POS ACCURACY**—Indicates that actual system performance (ASP) does not meet required system performance (RSP) or AMM is unable to calculate ASP. ASP calculations are based on GPS data. If AMM is in heading-up orientation, it removes the own-ship symbol and the map stops moving. If AMM is in north-up orientation, it removes the own-ship symbol and disables the **HDG-UP** button. If AMM is airborne, it disables the HDG-UP Arm feature. The fault notification disappears when ASP once again meets RSP.

If the EFB displays a fault notification, follow your organization's designated procedures for resolving the fault.

ENROUTE

The Enroute application enhances situational awareness by displaying a moving map. Use Enroute to perform the following tasks:

- View information on a moving map.
- Search for navigational objects.
- Retrieve navigational data.
- Create, modify, and load ad-hoc routes.

Enroute cannot run independently from the Boeing EFB software, which provides the framework for the Enroute application, the interface to the airplane, and the interaction with other integrated applications.

CAUTION: Although the Enroute application displays navigational data, it is not designed as a navigational tool, and the application does not display an own-ship symbol. Use other tools on the flight deck to navigate the aircraft on the route of flight.

NOTE: Some data elements on the screen shots in this document might not be provided in all releases of the Enroute software.

Using the Enroute Application

The Enroute application exhibits the following standard EFB behavior:

- To launch the application, select the application button on the **MAIN MENU** screen. Your organization defines the text of the button label.
- To exit the application, select the **MENU** bezel button to return to the **MAIN MENU** screen.
- To view system messages (indicated by MEMO or MSG notifications), select the application button on the **MAIN MENU** screen. The application displays the appropriate message.

Follow the on-screen instructions to acknowledge or resolve each MEMO notification.

- To view application faults, open the **SYSTEM FAULT LOG** screen. The application also displays some on-screen fault notifications during flight under certain conditions.

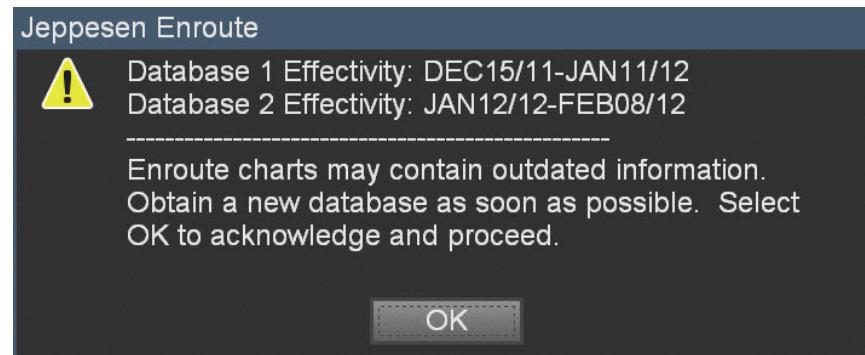
For more information about standard EFB behavior, see the “Using the EFB” chapter.

Working with Effective Data

Enroute acquires its map information from an Enroute database, which your organization installs as a part onto the Class 2 or Class 3 EFB. Enroute databases are associated with a date upon which the database becomes effective. This date is the database **effectivity** date.

The content of the Enroute database depends on the coverages that your organization subscribes to. Jeppesen releases updated Enroute data every 28 days based on the ARINC cycle. The EFB can support two databases with different effectivity dates. Upon flight initialization, the Enroute application automatically selects the currently effective (or active) database according to the database effectivity date and the flight start date as reported by the EFB. In some cases, both databases might be out of date, a database might be corrupt, or one database might be effective at flight start date and the second database might be effective later in the flight.

If neither database is effective on the current date, the application displays a memo notification upon flight initialization. This memo notification indicates the expired databases and requires you to acknowledge the condition before you can use Enroute. If you acknowledge the expired databases and choose to continue, the application uses the most recent database as the active database.

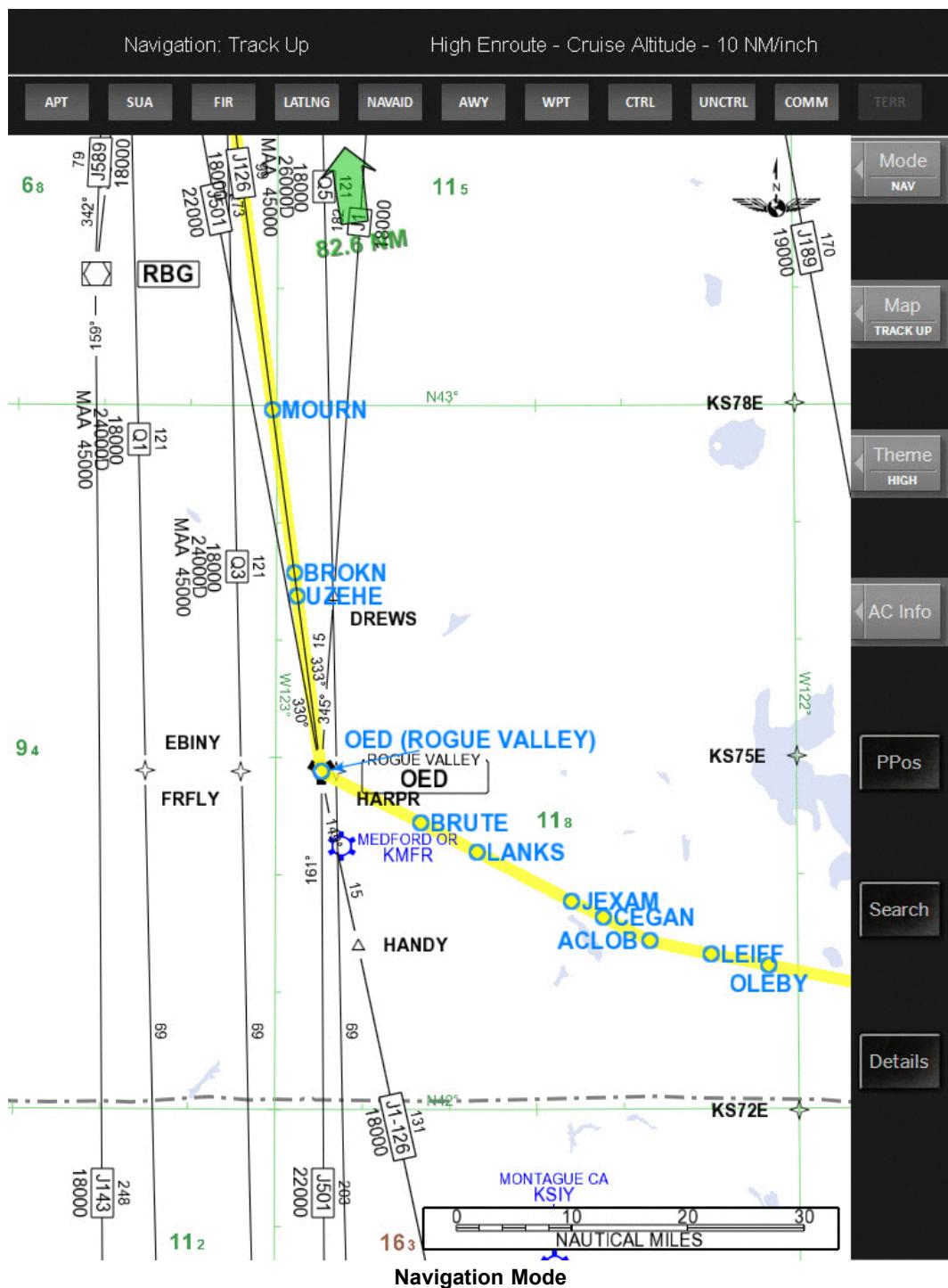


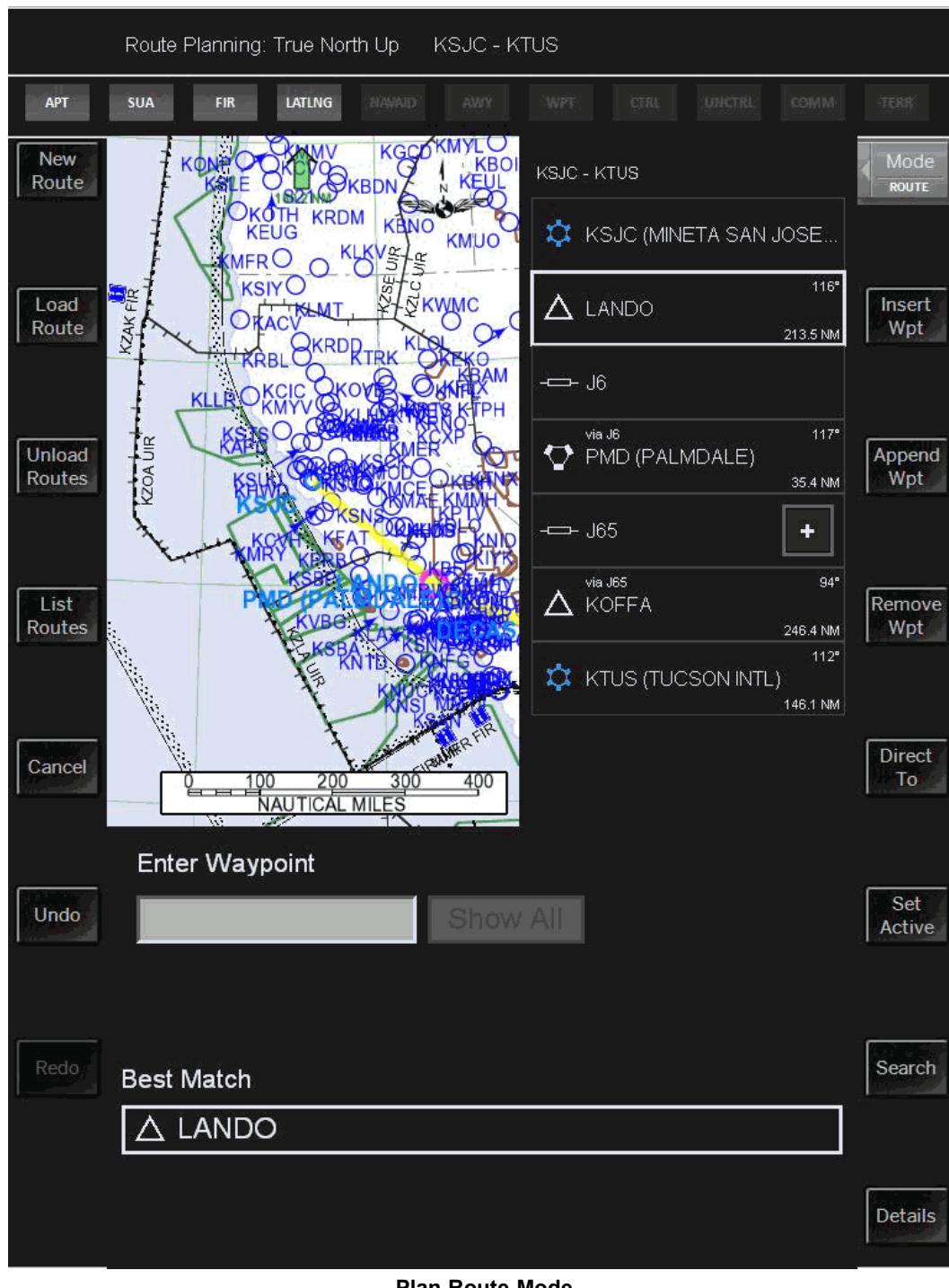
MEMO notification indicating outdated information

WARNING: If neither database is effective during the flight date range, follow your organization's procedures to update your database. You should not fly with outdated data.

Navigating the User Interface

The Enroute application can run in Navigation and Plan Route modes, and as dark (night) or light (day).





The following table describes the Enroute user interface elements:

Enroute User Interface Elements

Interface Element	Description
Title bar	The title bar displays the current mode (such as Navigation or Plan Route). Depending on the current mode, the title bar also displays map orientation (North Up or Track Up), Map theme (High Enroute or Low Enroute), and range scale.

Interface Element	Description
Application mode	The application has four application modes: Enroute Navigation, Route Planning, Regional Notes, and Reference Notes.
Map theme	The map theme displays a particular set of map objects and symbology associated with high-altitude (High Enroute) or low-altitude (Low Enroute) airspace. In Navigation mode, you select which of the two themes you want to view. The theme in Plan Route mode matches the theme you selected in Navigation mode.
Range scale	The range scale displays the units that were set in your options file when the application was initially set up and are not modifiable from within the application itself. The default range scale is nautical miles per screen inch (NM/inch). Other range scale options are km/inch, km/cm, SM/inch, SM/cm, NM/inch, or NM/cm.
Keyboard button	The keyboard button shows and hides the virtual keyboard. This button is enabled during certain searches. The virtual keyboard appears whenever you access Plan Route mode and whenever you select an entry field.
Toolbar buttons	Use the toolbar buttons to interact with the application. In Navigation mode, the toolbar buttons appear to the right of the moving map; in Plan Route mode, the buttons appear on both sides of the primary content area.
Declutter buttons	The Declutter buttons at the top of the application enable you to show or hide a variety of navigational information. For example, you can choose to show airports but hide special use airspaces and flight information regions. Not all declutter buttons are available at all zoom levels.

Selecting an Application Mode

Use the Enroute application in one of the following application modes:

Navigation mode	Displays a dynamic map in True North Up or Track Up orientation for situational awareness. Use this mode to reference the map.
Plan Route mode	Displays the route-planning tools for planning purposes. Use this mode, for example, to review a route, add waypoints to a route, or to plan for a diversion.
Regional Notes mode	Displays notes that are the functional equivalent of floating notes or cover/end panel notes on a precomposed (paper) chart.
Reference Notes mode	Displays information that is the functional equivalent of end/cover panel information or references to Airway Manual text on a precomposed (paper) chart.

The mode button on the toolbar displays the currently active mode.

To select or change an application mode:

1. Select the **Mode** button on the toolbar.
2. Select the submenu button for the appropriate mode.

Depending on the mode you select, the toolbars on the page display different buttons.

Working with the Map

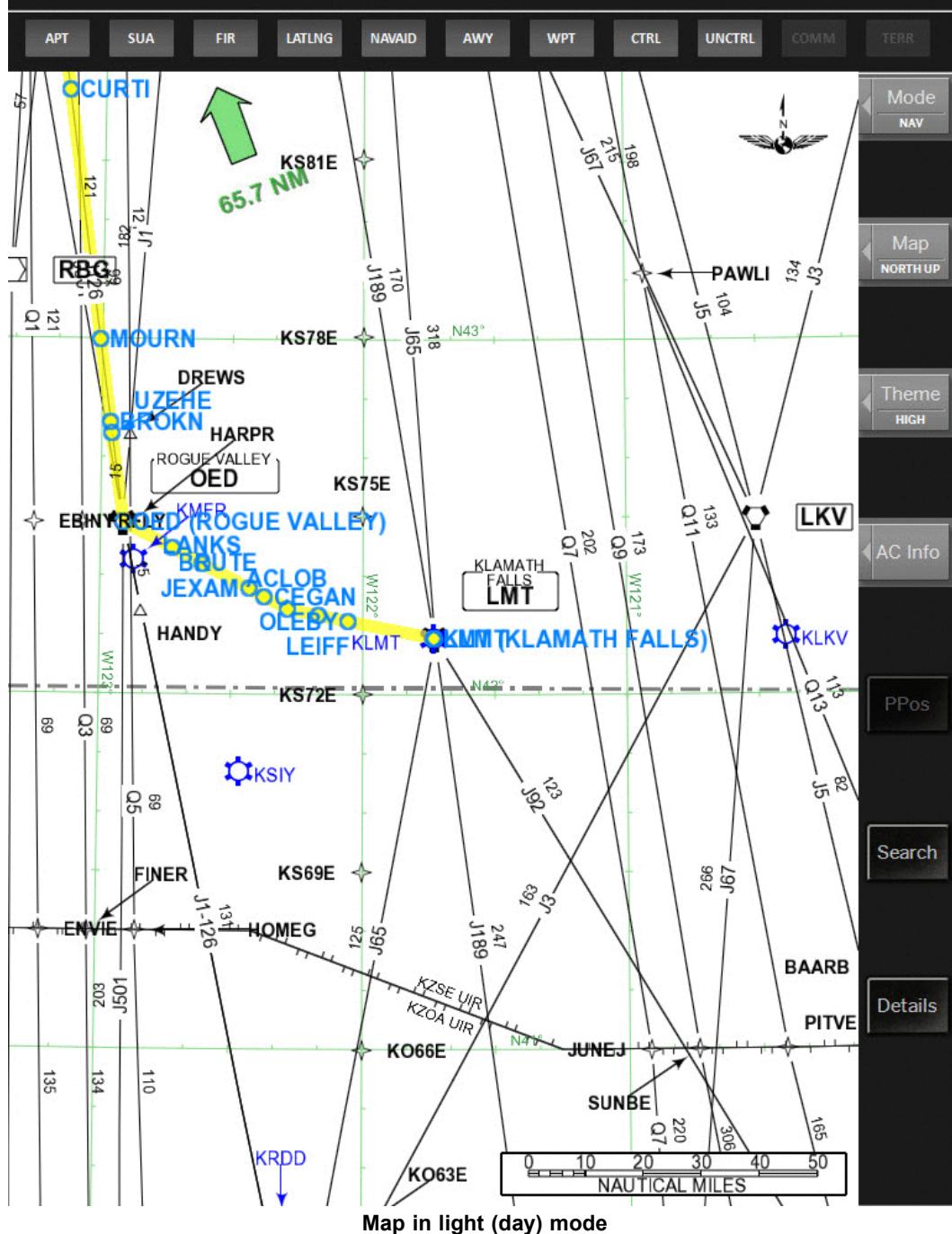
Enroute is a situational awareness application. When Enroute is connected to the aircraft's systems, the application uses the aircraft location data to enable live aircraft tracking on the moving map. Use the application to plan and view your route of flight, view terrain contours, search for and locate navigational objects, and retrieve details about any object or region.

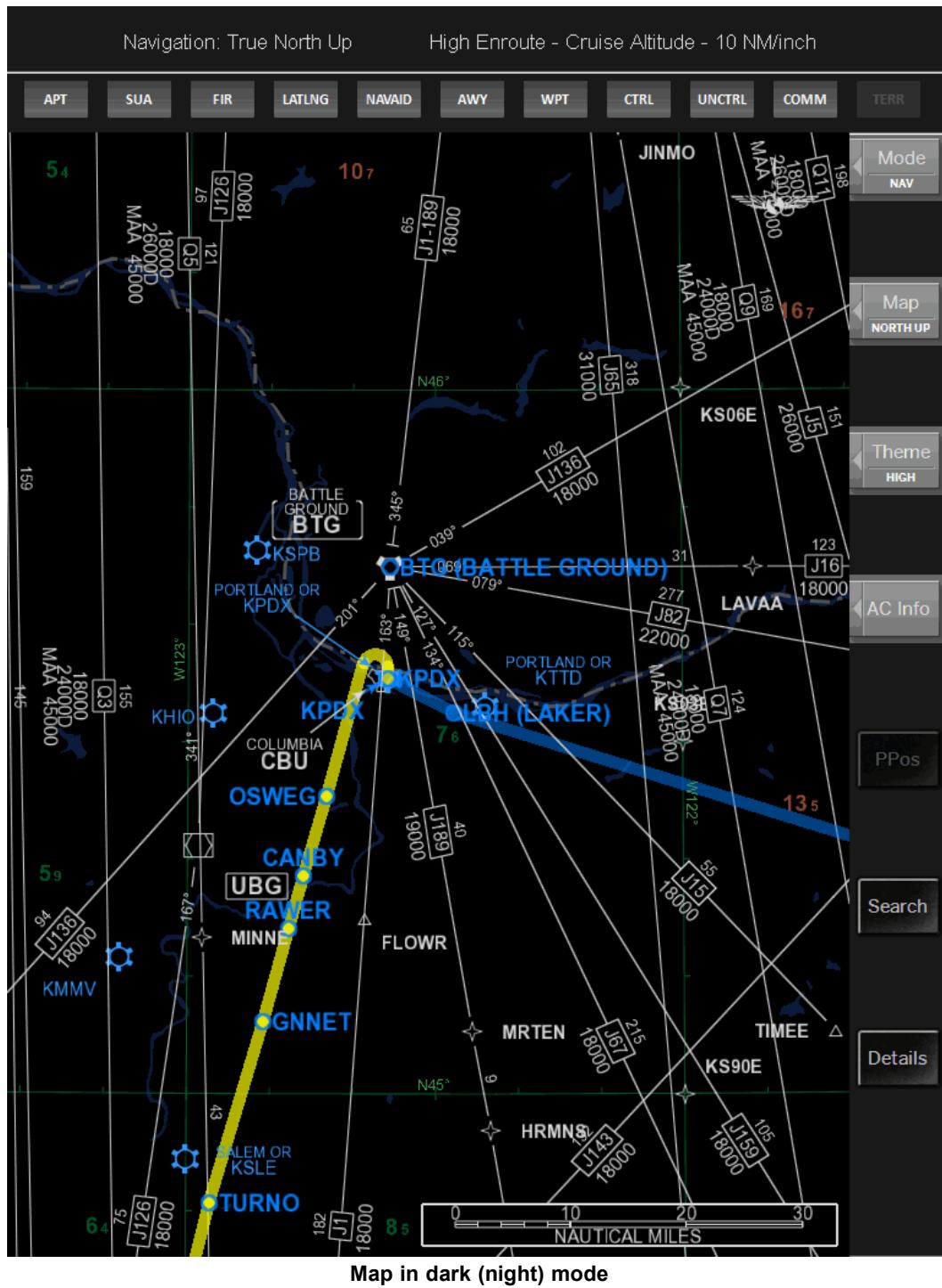
About the Map

Unlike a precomposed (paper) chart, the map renders dynamically and aids in your situational awareness relative to the surrounding geographical and navigational entities. You can alternate between map themes and render the map at multiple range scales to optimize readability and support appropriate phases of flight. You can also specify whether to view the map in light (day) mode or dark (night) mode. The following figures show enroute maps in these modes.

Navigation: True North Up

High Enroute - Cruise Lateral - 20 NM/inch





You can also use the EFB dimmer in conjunction with the light and dark modes to optimize the map contrast for the current ambient light conditions. Terrain features in this release are not viewable in dark (night) mode. To view terrain features at night, you must use light (day) mode in conjunction with an appropriate Display Unit dim level.

User Interface

The user interface includes the following elements:

Declutter options	Use declutter options to toggle map objects on and off, depending on your needs or your phase of flight.
Zoom controls and pan feature	Use the zoom controls on the Class 3 EFB bezel to view the map at defined zoom levels. Use the pan feature to move the map.
Distance scale and contour legend	Use the distance scale and terrain contour legend to gauge navigational distances and determine the associated terrain features.
Toolbar	Use the toolbar in Navigation mode to access navigational tools.
Map theme	Use the Map Theme to switch between High Enroute and Low Enroute. See Map Theme and Zoom Level.

Understanding Navigation Modes and Orientation

Use the application in Navigation mode for situational awareness. In Navigation mode, the application displays a dynamic map in either True North Up, or in Track Up orientation. The compass pointer indicates the north direction.

North Up

North Up orients the map so that the top of the map points toward true north. North Up is primarily useful for planning purposes. To view in North Up orientation, select **Map > North Up**.

When the aircraft is connected to the aircraft systems, and the map is in North Up orientation, the map is positioned to emphasize content ahead of the present position of the aircraft. When the map is oriented North Up, you can zoom and pan the moving map. When you pan the map, the application disables the moving map functionality and displays a static map image regardless of your aircraft's position. You restore the moving map functionality by selecting the **PPos** button.

If the aircraft is located outside the map display area, an aircraft off-screen arrow indicates the direction and distance from the map edge to the last reported aircraft location. The application updates the distance measurement with each aircraft location update.

If the application loses aircraft location, it disables the PPos button, and no longer displays the off-screen arrow (if it was showing). When the application regains aircraft location, it re-enables the PPos button. When you select PPos, the application again restores moving map functionality.

If the aircraft loses track data but retains position data, the application disables the North Up and Track Up buttons.

If you have panned the map, the panned view persists when you return to the map after accessing the search function or viewing regional notes or reference notes. You must select the PPos button after you close any dialog boxes in order to restore moving map functionality.

Track Up

Track Up orients the map in relation to the aircraft's true track angle, with the map positioned to emphasize content ahead of the present position of the aircraft. To view in Track Up, select **Map > Track Up**.

In Track Up orientation, the map moves and rotates according to aircraft location and true track. You can change the zoom level in this orientation. The application refreshes aircraft location at a rate of 1 Hz. (If the application displays any dialog box when in Track Up orientation, it pauses the movement of the map until you close the dialog box and select PPos.)

When you pan the map in Track-Up orientation, the application disables the moving map functionality and displays a static map image regardless of your aircraft's position. The map continues to rotate, though, to reflect your current track angle. You restore the moving map functionality by selecting the PPos button.

If the application loses aircraft location in Track Up, it notifies you of the loss of aircraft location and changes to North Up orientation. In addition, it disables both PPos functionality and the ability to display the map in Track-Up orientation.

Loss of Aircraft Information

If the aircraft loses track data but retains position data, the Enroute application disables the North Up and Track Up buttons. If the map is displayed in Track Up mode when the loss of information occurs, the application transitions the map to North Up mode.

If you are using an application other than the Enroute application and the aircraft loses position information, when you return to Enroute, the application displays the map in North-Up orientation and disables both PPos functionality and the ability to display the map in Track-Up orientation. In this situation, the application does not provide a notification regarding the loss of position data.

Understanding Map Themes and Zoom Level

A map theme is a feature that displays a particular set of map objects and symbols associated with that theme. This application ships with two map themes: High Enroute, which supports operations at 20,000 feet and above, and Low Enroute, which supports operations up to 20,000 feet above sea level. Each theme displays a particular set of map objects and symbols.

NOTE: In some countries, the upper and lower limits are 15,000 feet, rather than 20,000 feet. When an airway passes through political boundaries where an upper and lower operation limit discrepancy exists, and you are using the high enroute theme, you must switch from high enroute to low enroute (or from low enroute to high enroute) to continue viewing that airway.

Map themes are divided into zoom levels. The zoom levels are approximations; the distances they provide are only estimates. Do not try to use zoom levels as a precise tool.

Each zoom level has a specific operational purpose depending on the phase of flight. Use the zoom controls on the EFB bezel to display the map at a different range scale.

The following table lists the range scales and the operational uses associated with them:

Range Scales and Their Operational Use

Map Theme	Operational Use	Zoom Level
High Enroute	Orientation	Zoomed all the way out
	Airway Structure Overview	
	Cruise Lateral	
	Cruise Altitude	
	Details	Zoomed all the way in
Low Enroute	Orientation	Zoomed all the way out
	Airway Structure Overview	
	Cruise Lateral	
	Cruise Altitude	
	Details	Zoomed all the way in

The following table describes operational use:

Description of Operational Use

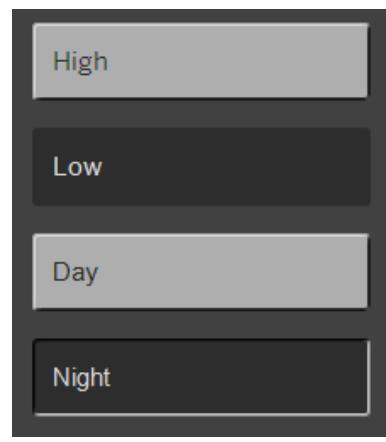
Operational Use	Description
Orientation	Depicts information regions, IFR airports with a minimum runway length of 5,000 feet, Special Use Airspace (SUA), and operational airspace (equipment boundaries) at a zoom level appropriate to operation in high-altitude airspace (depicted by the High Enroute map theme) or low-altitude airspace (depicted by the Low Enroute map theme). This view supports orientation for the flight segment with emphasis on origin, arrival, and alternate airport locations; information regions to be flown over; and airspace requirements that might affect the flight segment.
Airway Structure Overview	Includes the information from the Orientation View plus the depiction of airway centerlines and the navigational aids associated with those centerlines. The zoom level is still appropriate to Part 121/135 operation while also depicting additional airway structure overview information. This view helps to evaluate the airway structures and navigational aids associated with the flight segment, emphasizing airway crossings and airway definition navigational aids.
Cruise Lateral	Includes the information from the Orientation View and the Airway Structure Overview plus airway designations, airway one-way use indications, airspace fixes, airway segment mileage, holding patterns, off-route navigational aids, unregulated airspaces, Class A airspaces, and all appropriate airspace labels. This view supports route-of-flight lateral situational awareness and monitoring. It also enables you to evaluate rerouting instructions from ATC or company operations. In the Low Enroute theme, this view includes Grid Minimum Off-Route Altitude (MORAs).
Cruise Altitude	<p>Includes the information from the Orientation View, the Airway Structure Overview, and the Cruise Lateral View plus the following:</p> <ul style="list-style-type: none"> • Grid MORAs • All airway altitude data • Airway bearings • Cruise level exceptions • Class B and C Airspace (and equivalent ICAO airspace types) • Airspace sectors • Vertical limits of airspace • All IFR airports (regardless of minimum runway length) <p>This view enhances route-of-flight vertical situational awareness and monitoring. In addition, it helps</p>

	<p>in nonnormal situations that require descent from cruise altitude and allows you to evaluate rerouting instructions from ATC or company operations and unplanned climb/descend instructions from ATC. In the Low Enroute theme, this view includes all types of terminal airspace.</p>
Details	<p>Includes the information from the Orientation View, the Airway Structure Overview, the Cruise – Lateral View, and the Cruise – Altitude View plus the following airport information:</p> <ul style="list-style-type: none"> • High Enroute theme—For IFR airports with at least one runway that is 5,000 feet or longer, this view depicts the actual runway layout. For IFR airports with shorter runways, this view depicts the appropriate regular symbol. • Low Enroute theme—For IFR airports with at least one runway that is 5,000 feet or longer, this view depicts the actual runway layout with ILS feathers where appropriate. For IFR airports with shorter runways and all VFR airports, this view depicts the appropriate regular symbol. This view also depicts terminal navigational aids and terminal airspace fixes in the Low Enroute theme.

Changing Map Themes

To change the map theme:

1. Select the **Theme** button.
2. Select **High** Enroute or **Low** Enroute.



Theme Button Submenu

The application displays different map objects depending on the theme and zoom level that you select.

Understanding Declutter Options

The declutter options either show or hide map elements. An individual declutter option button is available only if the map displays an element at the current zoom level. A declutter option button appears active if the application is showing the map element. If a declutter option button is turned off, the application hides the map element. The application resets all selections to their default values each time it starts.

You set declutter levels independently in each map theme, and the declutter settings that you establish within a theme persist at all zoom levels. Altering EFB display options does not alter declutter settings. The enroute map displays the following declutter option buttons:



Declutter Option Button Bar

APT—Shows and hides IFR and VFR airports and airport localizer/ILS glideslope navigational aids.

SUA—Shows and hides special use airspaces.

FIR—Shows and hides flight information regions.

LATLNG—Shows and hides latitude/longitude grid and grid MORAs.

NAVAID—Shows and hides navigational aids (NAVAIDs).

AWY—Shows and hides airways.

WPT—Shows and hides waypoints.

CTRL—Shows and hides controlled airspaces (Air Traffic Radar Tracking and Control Area).

UNCTRL—Shows and hides uncontrolled airspaces (only available when CTRL is turned on).

COMM—Shows and hides communications data and enroute communication sectors.

TERR—Shows and hides the graduated surface terrain contours (Low Enroute theme only). Terrain is off by default.

NOTE: If a declutter option button is unavailable in the current theme or at the current zoom level, the button is dimmed.

The application displays map symbols and labels at simple, regular, and detailed levels depending on the selected range scale.

Understanding Zoom Controls and Panning

Use the zoom controls on the EFB bezel to generate a more or less detailed view of the map. You can also pan the map. When you touch the edge of the map, the pan arrow appears. If you keep pressing, the screen will autopan. You can pan the map in any direction, and in both Navigation mode and Plan Route mode. The application continuously moves the map in the direction of the pan and renders the map completely each time you remove your finger from the screen. The application renders minimal detail during the pan and does not draw details such as airways, most airspaces, and labels until you remove your finger from the touch screen.

When the application is connected to the aircraft systems, and when you pan so that last-reported aircraft location is outside the field of view in Navigation mode, the appearance of an off-screen arrow indicates the

direction and distance from the map edge. The distance is rounded to the nearest one-tenth of a nautical mile. The application updates the distance measurement as it receives each aircraft-location update.

Understanding Scale and Contour Legends

The map displays two types of legends: the distance scale and the contour legend.

Distance scale—Acts as a ruler that indicates an estimate of map distance.

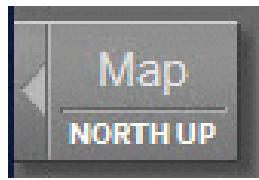
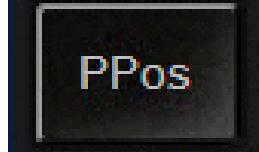
NOTE: The distance scale is not a precision tool.

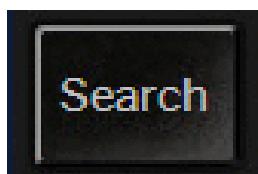
Terrain Contour Legend—Defines the color coding of terrain contours, which enhances your terrain awareness. The contour legend appears only in the Low Enroute theme, and only when the application is displaying terrain. For more information about viewing terrain contours, see the “Viewing Terrain Contours” section.

Using the Buttons on the Toolbar (Navigation Mode)

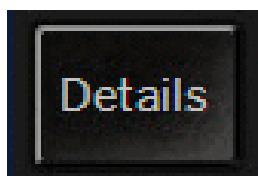
The following table describes the buttons on the toolbar in Navigation mode:

Toolbar—Navigation Mode

	Provides access to application modes. In Navigation mode, the title of the button is “NAV.” In Plan Route mode, the title of the button is “ROUTE.” In both Reference Notes mode and Regional Notes mode, the title of the button is “NOTES.”
	Provides access to map orientation. In North Up orientation, the title of the button reads “NORTH UP.” In Track Up orientation, the title of the button reads “TRACK UP.” The availability of orientation options depends on the application mode.
	Provides access to map themes. In the High Enroute theme, the title of the button reads “HIGH.” In the Low Enroute theme, the title of the button is “LOW.” You also use the Theme button to select dark (night) mode or light (day) mode.
	Provides access to aircraft information using data from the aircraft systems. See the “Viewing Aircraft Information” section for more information about aircraft information.
	Places the map within the context of the aircraft’s current position and restores moving map functionality if map motion had been suspended (for example, during a pan action). The application requires information from the aircraft systems or from a GPS system for this feature to work.



Provides access to the map search function. For information about searching the map, see the “Searching for Navigational Objects” section.



Switches the application into Details view, which enables you to view details about an object on the map. For information about viewing object details, see the “Working with Object Details” section.

Using the Map Example

Although the application provides a variety of charting information, viewing and using that information requires only a few actions. To use the map:

1. Select the Navigation mode.
 - a. Select the **Mode** button on the toolbar.
 - b. Select **Enroute Navigation**.
2. If necessary, select the appropriate orientation.
 - a. Select the **Map** button.
 - b. Select either **North Up** or **Track Up**.
3. Choose the appropriate map theme.
 - a. Select the **Theme** button.
 - b. Select either **High Enroute** or **Low Enroute**.
4. Turn declutter options on and off as appropriate to limit the view to the elements you need.
For example, to hide airways from view, select the **AWY** button. When you do so, the AWY button dims and the application no longer displays airways.
5. Use the zoom controls on the EFB bezel to zoom in or out from a particular region.
6. If necessary, pan the map.
7. To place the map within the context of the current aircraft location, select the **PPos** button. (This action requires a connection to the aircraft systems.)
8. To view details about a map element:
 - a. Select the **Details** button.
 - b. Select a map element.
For more information about viewing object details, see the “Working with Object Details” section.
9. To search for an object:
 - a. Select the **Search** button.
 - b. Use the Enroute Data Search window to carry out the search.
For more information about searching, see the “Searching for Navigational Objects” section.

Viewing Objects on the Map

To view an object on the map, choose the zoom level that will display that object symbol and label. The map displays object symbols and labels that are appropriate for the zoom level. If necessary, zoom in or zoom out.

To view additional details about an object on the map, see the “Working with Object Details” section.

Locating Objects on the Map

To locate an object, use the search function to search for and center the object on the map. For more information, see the “Searching for Navigational Objects” section.

Viewing Operational Notes

Information icons indicate that an operationally significant note is associated with a specific map feature. To view an Operational Note, select its information icon (i).

For more information about operational notes, see the “Working with Object Details” section and the “Working with Notes” section.

Understanding Map Symbols

The following table describes the symbols used with Enroute to identify navigational objects. The symbols that appear depend on range scale and map theme, as well as the declutter options that are in effect.

NOTE: The symbols shown in this table are for reference only, and might not exactly match the ones in the application. Although the symbols on the map are similar to the symbols described in the table, the symbols change as you zoom in and out on objects, displaying more or less information respectively.

Map Symbols

Symbol	Navigational Object
	Air Defense Identification Zone
	Airways
	Altimeter Region
	Civil Airport
	CNF Fix

Symbol	Navigational Object
	Communication Sector
	Controlled Airspace
	DME
	Equipment Boundary
	Fix
	Flight Information Region
	Holding Pattern
	Information icon, which indicates an operational note (See the "Viewing Operational Notes" section.)
	Joint Use Airport
	Localizer
	Military Airport
	NDB
	RNAV Waypoint
	Special Use Airspace
	TACAN
	VORDME

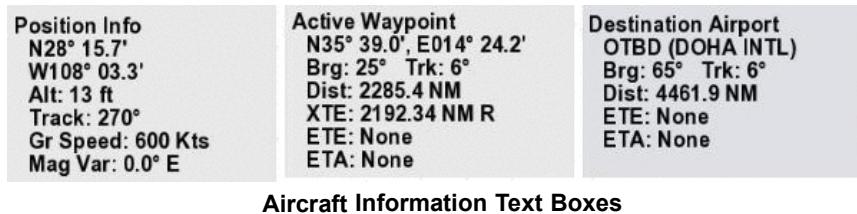
Symbol	Navigational Object
	VOR
	VORTAC

Viewing Aircraft Information

Select the **AC Info** button to view various types of aircraft information and other situational details. This option is active only when the application is connected to the aircraft systems. The following types of information are available from the submenu:

Position Information	Select this button to view or hide the aircraft location information. The application derives location information from the aircraft's 429 data bus. If position information is available, it can include current latitude/longitude location, altitude, true track angle, ground speed, and magnetic variance.
Active Waypoint	Select this button to view or hide the active waypoint. If active waypoint information is available, it can include the ICAO identifier and name, distance to the waypoint, cross-track error (XTE), estimated time enroute (ETE), and estimated time of arrival (ETA).
Destination Airport	Select this button to view or hide the destination airport. If this information is available, it can include ICAO identifier and name, bearing (Brg), track (Trk), distance to the destination airport, estimated time enroute (ETE), and estimated time of arrival (ETA).

The following figure shows examples of the three types of aircraft information available.



Aircraft Information Text Boxes

NOTE: The application displays only one information text box at a time.

Viewing Terrain Contours

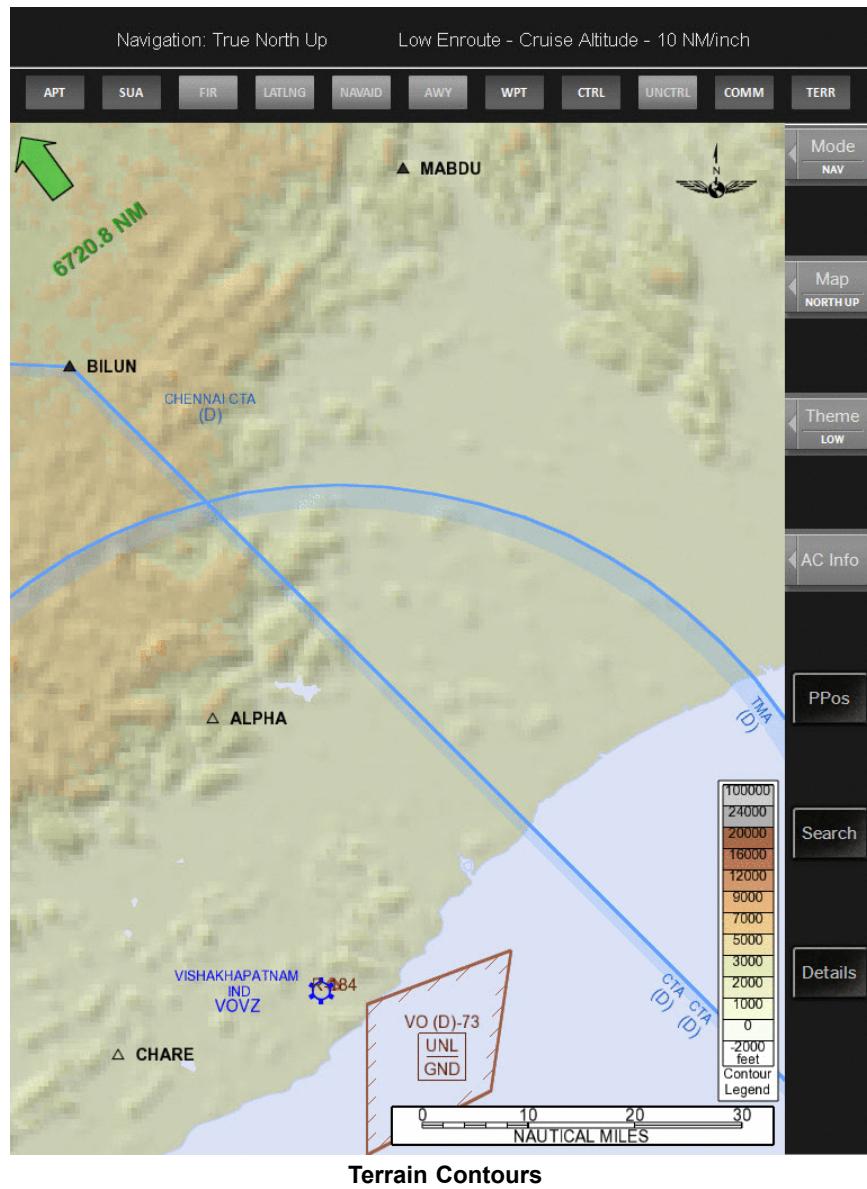
Terrain contours indicate the graduated surface contour levels. Terrain contours appear only in the Low Enroute theme.

NOTE: Terrain features in this release are not viewable in dark (night) mode. To view terrain features at night, you must use light (day) mode in conjunction with an appropriate Display Unit dim level.

To view terrain contours:

1. Select **Themes > Low** to view the map in the Low Enroute theme.

2. Because terrain is off by default, select the **TERR** button to show the terrain contours on the map.



CAUTION: The application is not a navigational tool. The terrain contours feature only supports situational awareness. To navigate the aircraft, you must use the appropriate navigational tools.

Searching for Navigational Objects

Use the Enroute Data Search function to search for any navigational object in the database. You can search by object identifier, name, or location.

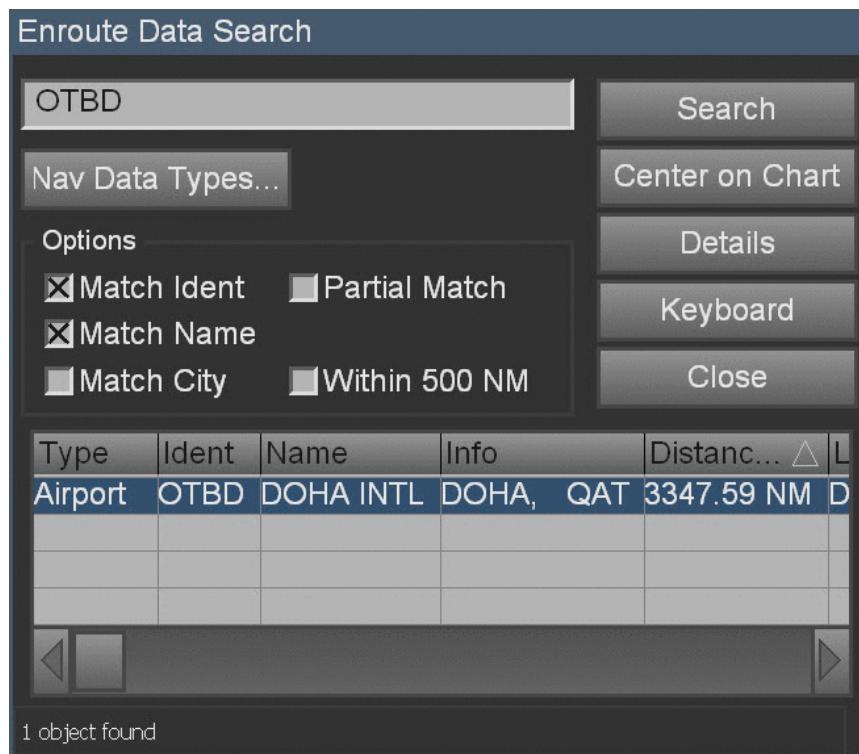
When you search, you can filter by specific object type such as navigational data types, airports, fixes, airways, and airspace. You can further limit the results by proximity—for example, within 500 nautical miles of the currently reported aircraft location. You can search by full coverage, which includes all objects that have been defined for your database.

NOTE: When you search by proximity, if the application cannot determine the aircraft's current location, it uses the center point of the currently displayed map as the basis from which to search.

To search for a navigational object:

1. In Navigation mode, select the **Search** button.

The application displays Enroute Data Search.



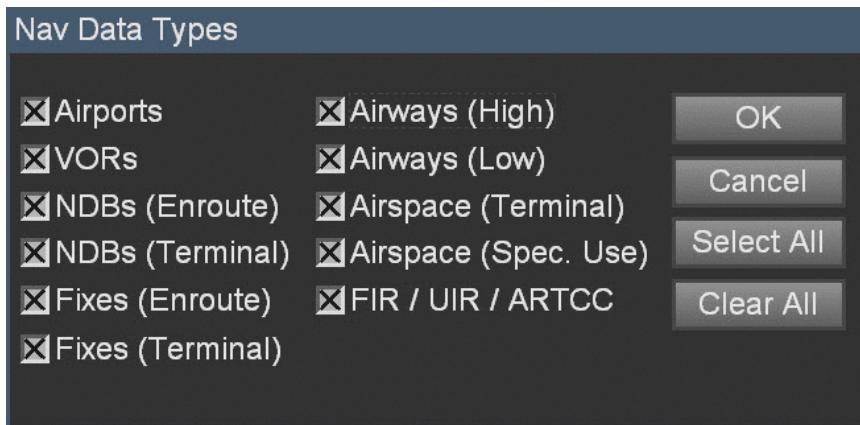
Enroute Data Search Dialog Box

2. Choose the appropriate search criteria:

To locate an object by name or ICAO code, enter at least two characters from the object's name into the search entry field. The application looks for an exact match unless you check Partial Match. When you use Partial Match, the application matches any name or identifier that contains the characters that you typed, in that exact order. For example, if you enter XYZ, the search results would not include YZX, but they would include AXYZJ.

3. Use the scroll arrows to scroll the list.

4. Select the **Nav Data Types** button to specify the types of navigational data to use (or exclude) from the search. All types are selected by default.



Nav Data Types Dialog Box

5. Select **OK** to accept the Nav Data Types and close the dialog box.
6. Select any of the available options to narrow your search. For example, to locate an object within 500 nautical miles of the current aircraft location, select **Within 500 NM**.
7. On Enroute Data Search, select **Search**.
8. Review the search results to find the object.
For information about the search results table, see the “Viewing Search Results” section.
9. Make a selection:
 - Select **Details** for more information about the navigational object.
For more information about details, see the “Working with Object Details” section.
 - Select **Center on Chart** to view the object at the center of the map in North Up orientation.
For example, if the map was in Track Up orientation when you accessed the search function, selecting **Center on Chart** displays the map in Navigation mode in North Up orientation. When you choose **Center on Chart**, the application displays the map and highlights the selected object for 15 seconds at the center of the display.
 - Select **Close** to close the search box.

Viewing Search Results

If a search produces results, the application displays a list of matches. If the results are too numerous to show on a single screen, a scroll bar appears so that you can scroll through the results.

Search results provide information that is specific to each type of navigational object. The following table identifies the specific navigational information that the application provides in the search results table.

Navigational Object Information in the Search Results Table

	Navaids	Fixes	Airports	Airways	Airsaces	Lat/Long
Type (Icon description)	✓	✓	✓	✓	✓	✓
ID (ICAO description)	✓	✓	✓	✓	✓	
Name (Text description)	✓	✓	✓	✓	✓	✓
Location coordinates	✓	✓	✓		✓	

Distance to	✓	✓	✓	✓	✓	✓
Longest Runway			✓			

You can sort results by column in ascending or descending order.

Working with Object Details

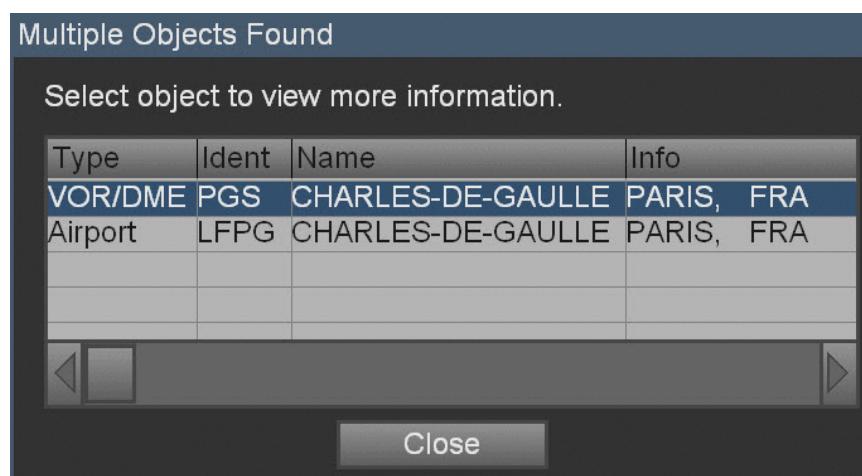
Every object in the application database has associated properties. View these properties at any time in Navigation mode by selecting **Details** and then selecting the object.

Accessing Object Details

To view object details, select the **Details** button, and then select the object directly on the map. You can also search for objects by using the search function, and then view the object details by selecting the **Details** button on the Enroute Data Search dialog box.

Accessing Details About Objects Directly on the Map

You can access details about any object on the map at any time. If an area is congested, the application displays the Multiple Objects Found dialog box, which lists the objects in the area so you can select the one you want. Each object in the list includes the object type, identifier, name, and information. Select a row to view additional information about the object.



Multiple Objects Found Dialog Box

To access details about an object on the map:

1. Select the **Details** button.

The application switches to Details view, and the shape of the cursor changes to an arrow.

2. Select the object on the map.

3. If necessary, select the object from the Multiple Objects Found dialog box.

The application displays the Details dialog box.

Viewing Details Dialog Boxes

The application uses Details dialog boxes to communicate information about selected navigational objects. The contents of a Details dialog box depend on the navigational object. Each dialog box displays the

object name or identification, and the content area displays the object's data types and data type values. In general, dialog boxes contain the following sections:

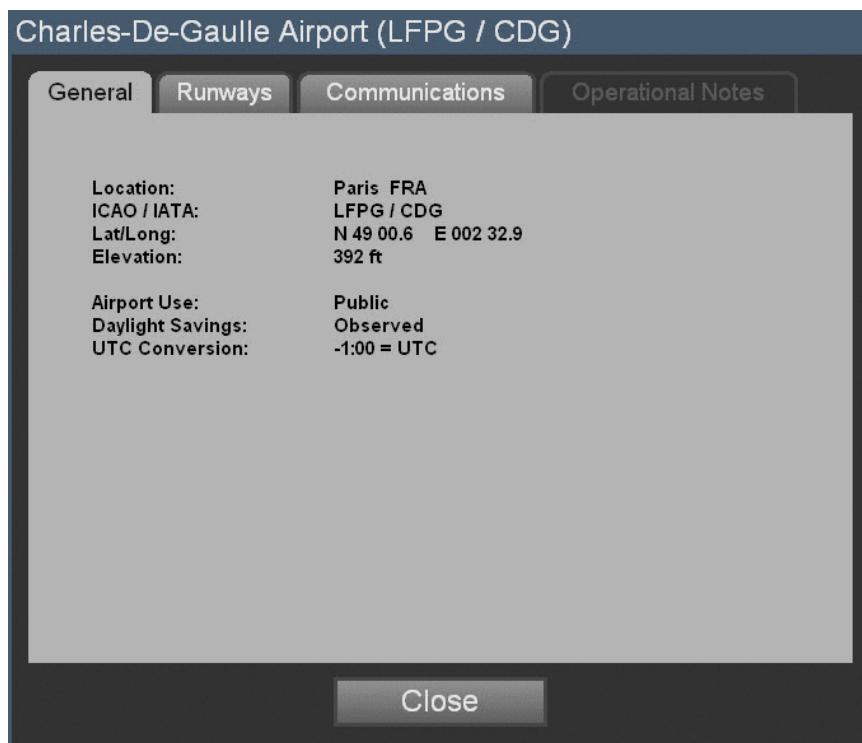
Details dialog box title—Contains the name and identifier of the navigational object.

Display information category tabs—Depending on the amount of data the application contains for each navigational object, the application organizes the detailed information into category tabs: General, Runways, Communications, Cruise Table, Restrictions, and Operational Notes.

NOTE: Operational notes are associated with specific features on the map that have significance to a specific route of flight. These notes are the functional equivalent of “ball notes” on a precomposed (paper) chart. In addition to accessing this information through a Details dialog box, you can access it by selecting an information icon on the map. For more information about information icons, see the “Viewing Operational Notes” section.

General Details

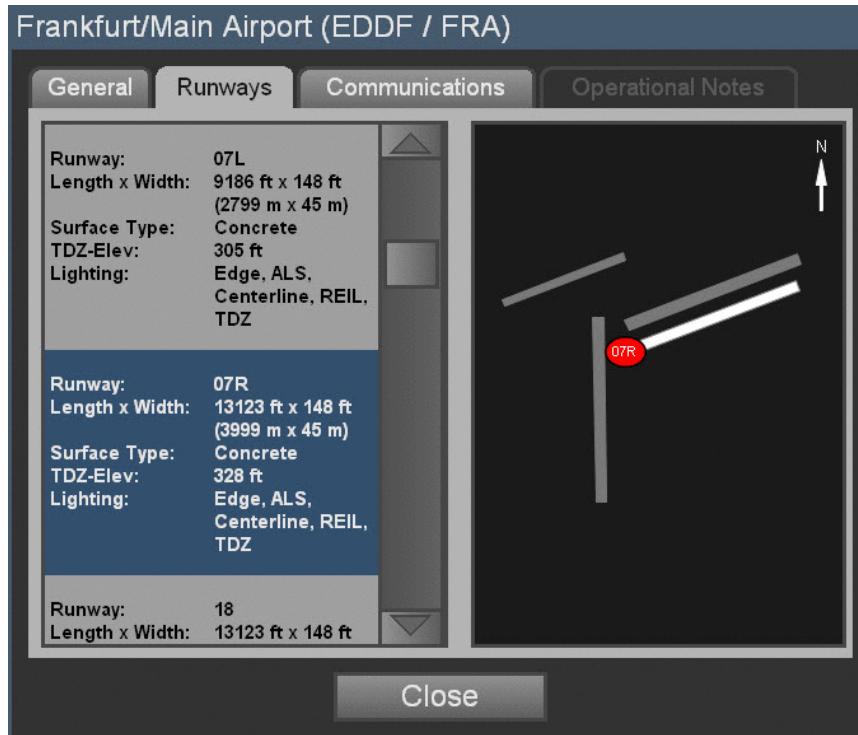
Select the **General** tab to view general information about an object, such as latitude and longitude, elevation, and airport usage.



General Details about Charles De-Gaulle Airport (LFPG)

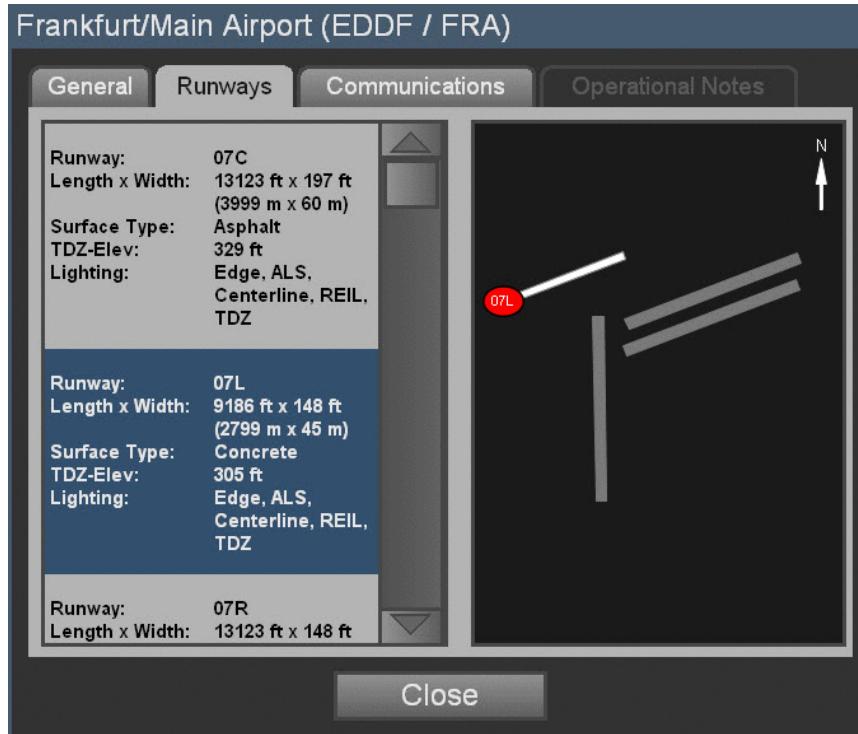
Runways

Select the **Runways** tab to view runway information, such as runway length, surface type, and lighting, as well as other characteristics for every runway at an airport.



Runways Details for Frankfurt Airport (EDDF) for Runway 07R

Select a runway on the left to highlight the runway and its approach in the graphic to the right.



Runways Details for Frankfurt Airport (EDDF) for Runway 07L

Communications

Select the **Communications** tab to view the radio communications details for the selected object.

Tokyo (Haneda) Intl Airport (RJTT / HND)			
General	Runways	Communications	Operational Notes
Callsign	Frequency	Radar	Service Indicators
Type: Approach			
TOKYO APPROACH	119.1	(R)	(ARR)
TOKYO APPROACH	119.4	(R)	(ARR, Secondary)
TOKYO APPROACH	119.7	(R)	(ARR, Secondary)
TOKYO APPROACH	124.4	(R)	(ARR, Secondary)
TOKYO APPROACH	125.8	(R)	(ARR, Secondary)
TOKYO APPROACH	127.7	(R)	(ARR, Secondary)
Type: Departure			
TOKYO DEPARTURE	119.6	(R)	(Secondary)
TOKYO DEPARTURE	120.6	(R)	(DEP, Secondary)
TOKYO DEPARTURE	120.8	(R)	(DEP, Secondary)
TOKYO DEPARTURE	124.2	(R)	(Secondary)
TOKYO DEPARTURE	125.52	(R)	(DEP, Secondary)
TOKYO DEPARTURE	126.0	(R)	(DEP)

Close

Communications Details for Tokyo Intl Airport (RJTT)

Cruise Table

Select the **Cruise Table** tab to view the cruise table associated with that airway segment. If no data is available for this category, the tab does not appear.

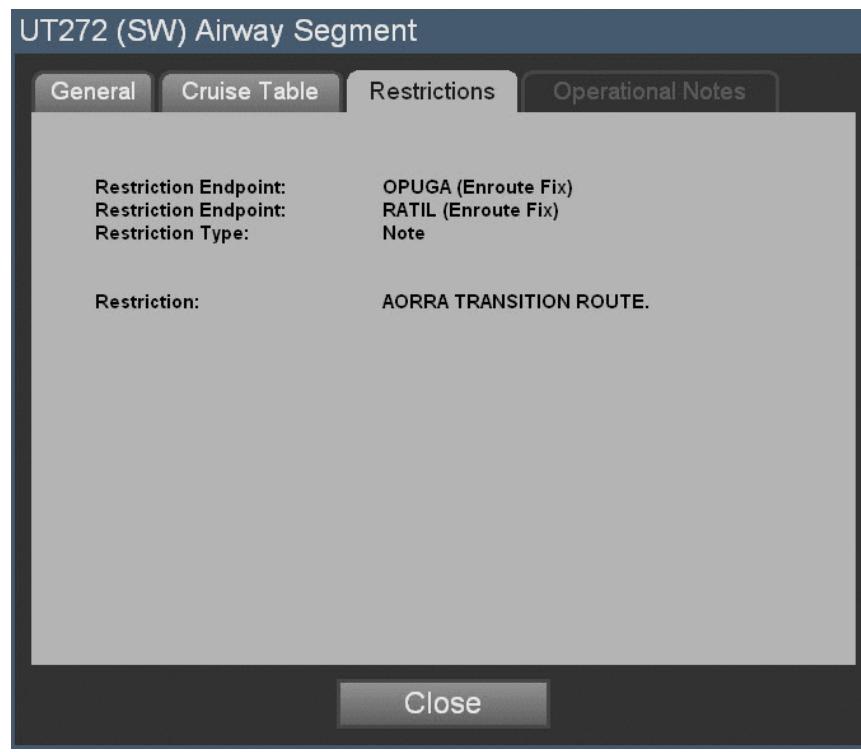
UY149 (SE) Airway Segment			
General	Cruise Table	Restrictions	Operational Notes
Cruise Levels: ICAO RVSM STANDARD			
Bearings: 360° to 179° Level: 2000 foot separation starting at 1000 ft up to 41000 ft Level: 4000 foot separation starting at 41000 ft up to Unlimited Bearings: 180° to 359° Level: 2000 foot separation starting at 2000 ft up to 40000 ft Level: 3000 foot separation starting at 40000 ft up to 43000 ft Level: 4000 foot separation starting at 43000 ft up to Unlimited			

Close

Cruise Table Details for Airway Segment UY149 (SE)

Restrictions

Select the **Restrictions** tab to view restrictions about the waypoint. If no data is available for this category, the tab does not appear.



Restrictions Details for Airway Segment UT272 (SW)

Operational Notes

See the “Viewing Operational Notes” section.

About the Contents of Details Dialog Boxes

The contents of a details dialog box are unique to the navigational object; however, if the property is blank, the information is omitted. For information about the specific details of each navigational object, refer to the following sections:

- Airports
- Waypoints (Airspace Fixes)
- Special Use Airspace (SUA)
- Flight Information Regions (FIR/UIR)
- Communications Sectors
- Airway Segments
- Controlled Airspaces
- Localizer Navigational Aids
- VORs
- NDBs
- Holding Patterns

- Terminal Fix Information

Airports

The title of an Airport details dialog box includes the airport name and the airport identifier. The following table describes the contents of airports details dialog boxes.

Airports Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> Location EXAMPLE: Denver CO USA ICAO / IATA Code EXAMPLE: KDEN / DEN Lat/Long EXAMPLE: N 09 01.0 W 004 06.6 Elevation EXAMPLE: 5431 ft Airport Use EXAMPLE: Public or Military Daylight Savings Time EXAMPLE: Observed UTC Conversion EXAMPLE: +7:00 = UTC
Runway	<ul style="list-style-type: none"> Runway EXAMPLE: 16R Length x Width EXAMPLE: 16000 ft x 200 ft (3657 m x 45 m) Surface Type EXAMPLE: Concrete TDZ-Elev EXAMPLE: 5324 ft Lighting EXAMPLE: Edge, ALS, Centerline, TDZ
Communications	Type EXAMPLE: Approach or Departure The following columns appear for each frequency that exists for each type: <ul style="list-style-type: none"> Callsign Frequency Radar Service Indicators

Waypoints (Airspace Fixes)

The title of a Waypoint details dialog box includes the waypoint identifier. If the waypoint is a Computer Navigation Fix (CNF), the application displays the identifier in brackets. In addition, the title includes

the waypoint type (Enroute/Terminal) in parentheses. The following table describes the contents of a waypoints details dialog box.

Waypoints Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • Lat/Long EXAMPLE: N 45 44.9 W 122 35.5 • Name EXAMPLE: Battle Ground • Additional Data EXAMPLE: RNAV Waypoint • MRA EXAMPLE: 4500 ft

Special Use Airspace (SUA)

The title of a Special Use Airspace (SUA) details dialog box includes the airspace name and airspace type. The following table describes the contents of an SUA details dialog box.

Special Use Airspace Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • Type EXAMPLE: Restricted Area • Designator EXAMPLE: R-6903 • Controlling Agency EXAMPLE: FAA Minneapolis ARTCC • Upper Limit EXAMPLE: FL450 • Lower Limit EXAMPLE: GND • QNH Altitude EXAMPLE: Below 4500 ft • QNE Flight Level EXAMPLE: At or Above FL450 • Speed Limit EXAMPLE: 250 knots • Activity EXAMPLE: Sports event • Activation EXAMPLE: Friday to Sunday

Flight Information Regions (FIR / UIR)

The title of a Flight Information Region (FIR) / Upper Information Region (UIR) details dialog box includes the region name and region type. The following table describes the contents of an FIR / UIR details dialog box.

FIR / UIR Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • FIR / UIR Name EXAMPLE: KANSAS CITY • FIR / UIR Identifier EXAMPLE: KZKC • Type EXAMPLE: FIR or UIR • Upper Limit EXAMPLE: FL600 • Lower Limit EXAMPLE: FL180
Communications	<p>Type EXAMPLE: Center</p> <p>The following columns appear for each frequency that exists for each type:</p> <ul style="list-style-type: none"> • Callsign • Frequency • Radar • Service Indicators
Cruise Table	<ul style="list-style-type: none"> • Cruise Levels EXAMPLE: ICAO RVSM STANDARD • Bearings EXAMPLE: 360° to 179° • Level EXAMPLE: 2000 foot separation starting at 2000 ft up to 40000 ft • Level EXAMPLE: 4000 foot separation starting at 41000 ft up to Unlimited • Bearings EXAMPLE: 180° to 359° • Level EXAMPLE: 2000 foot separation starting at 2000 ft up to 40000 ft • Level EXAMPLE: 3000 foot separation starting at 40000 ft up to 43000 ft • Level EXAMPLE: 4000 foot separation starting at 43000 ft up to Unlimited

Communications Sectors

The title of a Communications Sector details dialog box includes the comm sector name and identifier. The following table describes the contents of a Communications Sector details dialog box.

Communications Sector Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> Comm Sector Name EXAMPLE: AMSTERDAM SECTOR SOUTHEAST Comm Sector Identifier EXAMPLE: EHAA Type EXAMPLE: UAC Sector High Upper Limit EXAMPLE: FL600 Lower Limit EXAMPLE: FL180
Communications	Type EXAMPLE: Approach or Departure The following columns will be displayed for each frequency that exists for each type: <ul style="list-style-type: none"> Callsign Frequency Radar Service Indicators

Airway Segments

The title of an Airway Segment details dialog box includes the airway ID, the ATC advisory code, the cardinal direction, and the word "Segment." The following table describes the contents of an airway segment details dialog box.

Airway Segment Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> Type: High, Low, High/Low (Structure) Segment Start EXAMPLE: QUALM (Enroute Fix) Lat/Long EXAMPLE: N 37 14.3 W 094 16.5 Outbound Bearing EXAMPLE: 106° Segment Distance EXAMPLE: 222 NM Segment End EXAMPLE: MIRTH (Enroute Fix)

Tab Name	Tab Contents
	<ul style="list-style-type: none"> • Lat/Long EXAMPLE: N 37 17.1 W 093 54.8 • Inbound Bearing EXAMPLE: 286° • MEA EXAMPLE: 3000 ft • MEA (Arrival) EXAMPLE: 3000 ft • MEA (Departure) EXAMPLE: 3000 ft • MEA (Overflight) EXAMPLE: 3000 ft • MEA (GNSS) EXAMPLE: 3000G ft • MEA (DME/DME) EXAMPLE: 3000D ft • MOCA EXAMPLE: 3000T ft • MORA EXAMPLE: 3000 ft • MCA EXAMPLE: 3000 ft • MRA EXAMPLE: 3000 ft

Airway Segment Data (continued)

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • MAA EXAMPLE: 3000 ft • MAA (Arrival) EXAMPLE: 3000 ft • MAA (Departure) EXAMPLE: 3000 ft • MAA (Overflight) EXAMPLE: 3000 ft • MAA (GNSS) EXAMPLE: 3000 ft • MAA (DME/DME) EXAMPLE: 3000 ft

Tab Name	Tab Contents
	<ul style="list-style-type: none"> • MET Report Required At EXAMPLE: MIRTH (Enroute Fix) • MET Report Altitude EXAMPLE: At or above FL34 • Provide MET Report To EXAMPLE: KZXC

Controlled Airspaces

The title of a controlled airspace details dialog box includes the airspace name, the airspace type, and the word *Perimeter* if the object is the perimeter boundary of the controlled airspace (Z Boundary Flag) or the word *Sector* if the object is the interior sector boundary of the controlled airspace. The following table describes the contents of a controlled airspace details dialog box.

Controlled Airspace Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • Type EXAMPLE: Restricted Area • Designator EXAMPLE: R-6903 • Controlling Agency EXAMPLE: FAA Minneapolis ARTCC • Restriction • Upper Limit EXAMPLE: FL450 • Lower Limit EXAMPLE: GND • QHN Altitude EXAMPLE: Below 4500 ft • QHE Flight Level EXAMPLE: At or Above FL450 • Speed Limit EXAMPLE: 250 knots • Activity • Activation EXAMPLE: Friday to Sunday

Localizer Navigational Aids

The title of a localizer navigational aid details dialog box includes the airport name, category, associated runway, and navigational aid identifier. The following table describes the contents of the localizer navigational aid details dialog box.

Localizer Navigational Aid Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • Type EXAMPLE: ILS • Associated Runway EXAMPLE: Rwy 17L • Magnetic Course EXAMPLE: 170.0° • Frequency EXAMPLE: 110.15 MHz • Identifier EXAMPLE: IBXP • Glide Slope Angle EXAMPLE: 3.0° • Morse Code <div style="text-align: center; margin-top: 10px;"> * * - - * * * - - * * </div> EXAMPLE: I B X P

VORs

The title of a VOR details dialog box includes the frequency, type, declination, and any pertinent additional data. In addition to describing standard VORs, this dialog box also describes DMEs, VORDMEs, TACANs, and VORTACs. The following table describes the contents of the VOR details dialog box.

VOR Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • Frequency (VORDME, VORTAC) EXAMPLE: 117.4 MHz (Channel 121) • Frequency: (DME, TACAN) EXAMPLE: Channel 121 (117.4 MHz) • Frequency: (VOR) EXAMPLE: 117.4 MHz • Lat/Long EXAMPLE: N 30 05.5 E 31 23.3 • Location EXAMPLE: Cairo EGY • Declination EXAMPLE: 4.0° E • Morse Code <div style="text-align: center; margin-top: 10px;"> --- --- </div> EXAMPLE: C V O • Usage EXAMPLE: High Altitude

Tab Name	Tab Contents
	<ul style="list-style-type: none"> Additional Data <p>EXAMPLE: ATC Compulsory for High and Low Airways</p>

NDBs

The title of an NDB details dialog box includes the frequency, type, magnetic variation, and any pertinent additional data. The following table describes the contents of the NDB details dialog box.

NDB Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> Frequency EXAMPLE: 260.4 kHz Type EXAMPLE: Terminal NDB Lat/Long EXAMPLE: N 39 27.1 W 104 50.7 Location EXAMPLE: Denver CO USA Magnetic Variation EXAMPLE: 11.0° E Morse Code  EXAMPLE: A P Additional Data <p>EXAMPLE: Medium Power NDB and Outer Marker</p>

Holding Patterns

The title of a holding pattern details dialog box includes the holding pattern name, the hold, the inbound bearing, and the turn direction (abbreviated as LT or RT).

If the holding pattern is based on two fixes (dual hinged), the title includes the name of both fixes (for example, FIX/FIX).

If the holding pattern is based on a DME-terminated outbound leg, the title includes the name of the holding fix, the DME distance of the termination, and the identifier of the DME facility (for example, FIX/D10 DME). The following table describes the contents of a holding pattern details dialog box.

Holding Pattern Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • Holding Fix <p>EXAMPLE: RAMMS</p> • Inbound Bearing <p>EXAMPLE: 131°</p> • Limit <ul style="list-style-type: none"> • 1:30 minutes • 3.5 NM • 4.5 NM/XYZ • Radial <p>EXAMPLE: 25.8°</p> • Turn Direction <p>EXAMPLE: Right</p> • Holding Fix <p>EXAMPLE: FIXID</p> • Inbound Bearing <p>EXAMPLE: 311°</p> • Limit <ul style="list-style-type: none"> • 1:30 minutes • 3.5 NM • Turn Direction <p>EXAMPLE: Right</p> • Maximum Altitude <p>EXAMPLE: 45000 ft</p> • Minimum Altitude <p>EXAMPLE: 18000 ft</p> • Speed Limit <p>EXAMPLE: 350 knots</p> • Usage <p>EXAMPLE: Exists in high altitude network</p>

Terminal Fix Information

The following table describes the contents of a Terminal Fix details dialog box.

Terminal Fix Data

Tab Name	Tab Contents
General	<ul style="list-style-type: none"> • Lat/Long EXAMPLE: N 45 44.9 W 122 35.5 • Name EXAMPLE: Battle Ground • Airport EXAMPLE: KPDX • Additional Data EXAMPLE: RNAV Waypoint • MRA EXAMPLE: 4500 ft

Working with Notes

This application provides features for retrieving and viewing aeronautical information in textual format. The features address three categories of textual data:

Operational notes (“ball notes”)—Associated with a map feature that has operational significance. To view the note, select the information icon  on the map. You can also view any operational notes associated with a navigational object or an airport.

Regional notes mode—Associated with a specific region. These notes are the functional equivalent of “floating notes” or “cover/end panel notes” on a precomposed (paper) chart. To access this mode and view the note, select **Mode > Regional Notes**.

Reference notes mode—Associated with generic information. This information is the functional equivalent of end/cover panel information or references to Airway Manual text on a precomposed (paper) chart. To access this mode and view the note, select **Mode > Reference Notes**.

This section contains the following topics:

- Viewing Operational Notes
- Viewing Regional Notes
- Viewing Reference Notes

Viewing Operational Notes

Information icons  on the map indicate operational notes. You can access the information through the details dialog boxes for navigational objects that contain operational notes.

To view operational notes through an information icon:

1. Select the information icon.
2. Select **Close** to close the dialog box.

NOTE: If no operational notes exist for a particular navigation object, the Operational Notes tab is dimmed and cannot be selected.

Viewing Regional Notes

The Enroute application displays Regional Notes. The regional notes page contains the following elements:

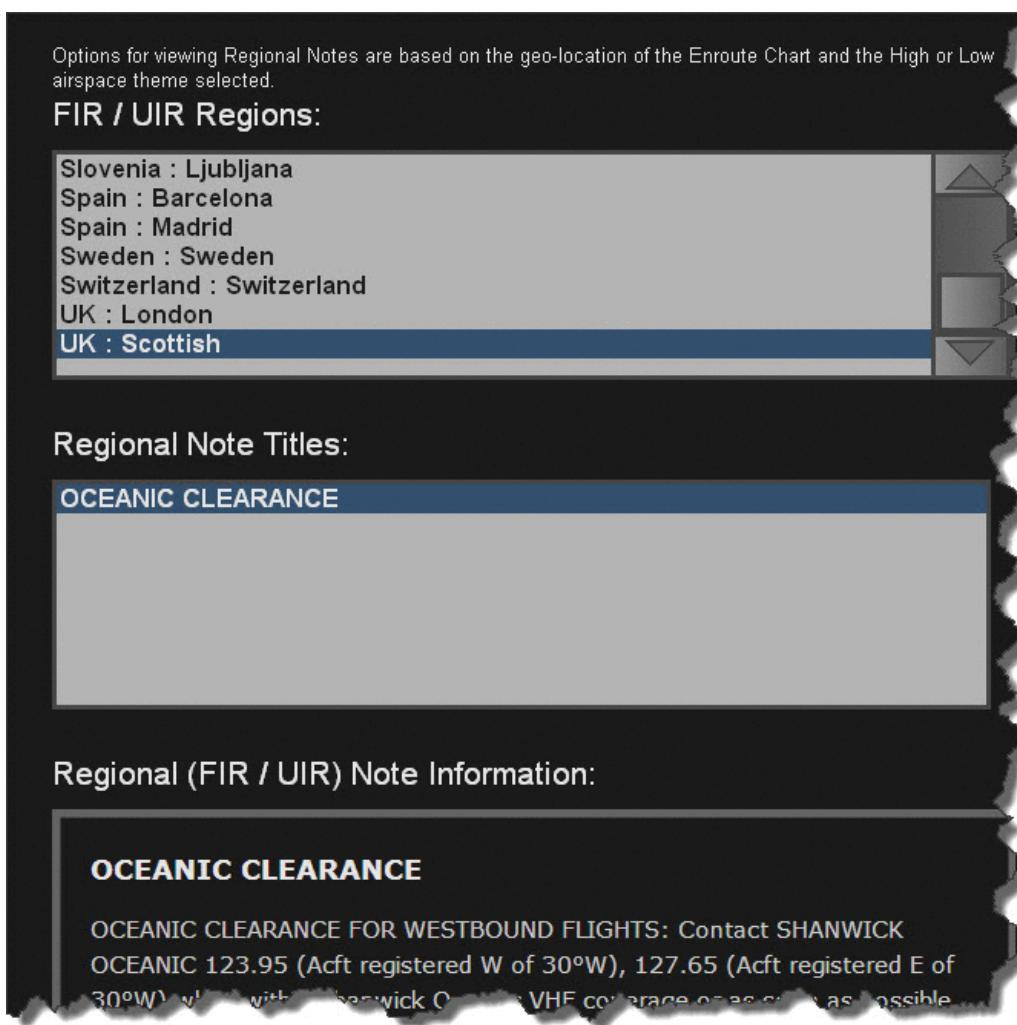
- FIR / UIR Regions—Limit results by the FIR / UIR selected.
- Regional Note Titles—Title of the regional note.
- Regional (FIR / UIR) Notes Information—The text of the note.

The application filters the content based on information derived from the center of the map. For example, if your destination airport is Glasgow, GBR (EGPF), and you have positioned the map to prepare for your arrival, the application displays regional notes for UK: Scottish. You can select a different region at any time.

To view regional notes:

1. Select **Mode > Regional Notes**.

This opens the Regional Notes page.



Options for viewing Regional Notes are based on the geo-location of the Enroute Chart and the High or Low airspace theme selected.

FIR / UIR Regions:

- Slovenia : Ljubljana
- Spain : Barcelona
- Spain : Madrid
- Sweden : Sweden
- Switzerland : Switzerland
- UK : London
- UK : Scottish**

Regional Note Titles:

OCEANIC CLEARANCE

Regional (FIR / UIR) Note Information:

OCEANIC CLEARANCE

OCEANIC CLEARANCE FOR WESTBOUND FLIGHTS: Contact SHANWICK
OCEANIC 123.95 (Acft registered W of 30°W), 127.65 (Acft registered E of
30°W) v' with Shanwick C VHF coverage as close as possible

Regional Notes

2. From the FIR / UIR Regions List, select the appropriate region (if necessary).
3. From the Regional Note Titles list, select the title of the note to review.

The application displays the contents of the note in the Regional Note Information area.

Viewing Reference Notes

The first time you access reference notes, the application auto-selects the coverage based on your current location; after that, reference notes mode always returns to the state it was in when you exited.

The reference notes page contains the following elements:

- Coverage—Limit results by Coverage and Region; each filter further limits the results.
- Country—Limit results by Country; each filter further limits the results.
- FIR / UIR—Limit results by FIR / UIR; each filter further limits the results.
- Note Types—Limit results by the type of reference note; each filter further limits the results.
- Reference Note Titles—Title of the reference note.
- Reference Note Information—Reference note content.

To view reference notes:

1. Select **Mode > Reference Notes** to open the Reference Notes page.

Coverage: Europe - EUR

Country: All (Coverage-wide)

FIR / UIR: All (Country-wide)

Note Type: General

Reference Note Titles:

ATS ROUTE RESTRICTIONS (1)
 ATS ROUTE RESTRICTIONS (2)
 CRUISING LEVEL PROCEDURES
 DOMESTIC ROUTING
 LOWER AIRSPACE RADAR SERVICE
RVSM PROCEDURES
 TRANSPONDER SETTING

Reference Note Information:

RVSM PROCEDURES

REDUCED VERTICAL SEPARATION MINIMUMS (FL290 - FL410) For RVSM procedures and equipment requirements see AIR TRAFFIC CONTROL pages E-1/2 thru E-7/BLK.

Reference Notes

2. Use the boxes at the top of the page to filter the notes that appear.
3. From the **Reference Note Titles** list, select the title of the note to review.

The application displays the contents of the note in the Reference Note Information area.

Working with Routes

Use the Enroute application in Plan Route mode to create routes, load existing routes onto the map, and update or modify routes. The application includes features that help to ensure that any airways you add between points are valid.

This section includes the following topics:

- Using the Buttons on the Toolbar (Plan Route Mode)
- Viewing Routes on the Map
- Understanding Route Lists
- Understanding Route Properties
- Creating a Route

- Loading and Unloading Routes
- Modifying a Route

Using the Buttons on the Toolbar (Plan Route Mode)

The following table describes the buttons that are available in Plan Route mode:

Toolbar—Plan Route Mode

Button	Description
New Route	Enables you to create a route. You must first create a route before you can use any of the route-planning features.
Load Route	Depicts, on the route-planning map, one or more of the routes that you create. The routes that you select to load are the routes that appear on the map in Enroute Navigation mode. NOTE: When you load and unload routes that you have created, the routes persist in the EFB memory until you reinitialize the EFB, start a new flight, or power off the EFB.
Unload Routes	Clears all routes from the map. When you unload routes, you are not removing them from system memory. The routes remain available for use—they merely are removed from the map.
List Routes	Displays a list of all routes that are currently loaded. Use this button to work with a particular route. For example, assume that you have created and loaded two routes and you want to modify one and make it active. Select List Routes to see the list of routes, and then select a route. That route becomes the active route, which you can then modify as necessary.
Cancel	Cancels the last action.
Undo	Reverts to the previous state. For example, assume that while creating a route, you enter the wrong waypoint. Select Undo to revert to the route as it was before you added the incorrect waypoint.
Redo	Restores your last action. For example, Redo reverses an <i>Undo</i> action.
Insert Wpt	Enables you to specify the point within a route where you want to insert a waypoint from the Enter Waypoint text box. The application displays Insert arrows at all of the possible insertion points when you select Insert Waypoint .
Append Wpt	Adds the waypoint in the Enter Waypoint text box to the end of the route.
Remove Wpt	Removes whichever waypoint is currently highlighted in the waypoint list.
Direct To	Enables you to modify a current route by recording your current position as a waypoint and removing all intermediate waypoints between your current position and the waypoint that you want to fly direct to.

Button	Description
Set Active	Enables you to override the automated sequencing of waypoints and set any waypoint in your route as the active waypoint.
Search	Opens the Enroute Data Search dialog box. Use the Search feature to search for any navigational object in the database. You can search by object identifier, name, or location. See the “Searching for Navigational Objects” section for more information about refining your search criteria.
Details	Enables you to view details about an object on the map. To use this feature, first select Details , and then select an object on the map. For information about viewing object details, see the “Working with Object Details” section.

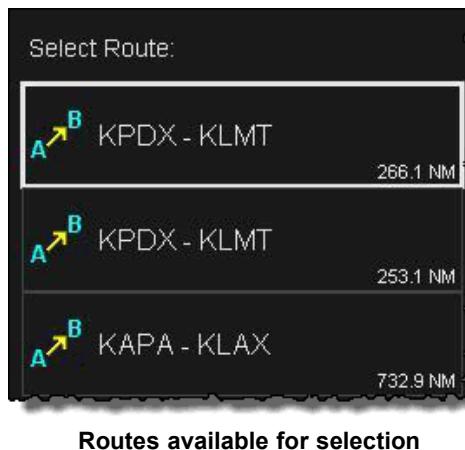
Viewing Routes on the Map

To view routes on the map, they must first have been created, and then loaded in Plan Route mode. For more information about those tasks, see the “Creating a Route” section and the “Loading and Unloading Routes” section.

To view loaded routes:

1. On the Route Planning page, select the **List Routes** button on the toolbar.

The application displays the routes that have been created during the current session. (If no routes have been created during the current session, the List Routes button is not enabled.) For each route, the application shows the origin and destination, and the total distance of the route. The active route is depicted on the map in yellow, and any other routes that you have selected to appear on the map are blue.



2. Select a route from the list to display it on the map.

Understanding Route Lists

A route list is a graphical representation of the route's sequencing, including route segments, airway segments, and waypoints. The collapsed view of a route that contains an airway sequence that is composed of multiple airway segments is similar to a dot-notation (airway routing) entry. (For more information about dot-notation entry, see the “Create a Route Using Airway Routing” section.)

The following example route list explains the different parts of a typical route list. This is a route list from origin to destination. The first segment is the origin, KSJC (Norman Y. Mineta Memorial San Jose International Airport).



Route list

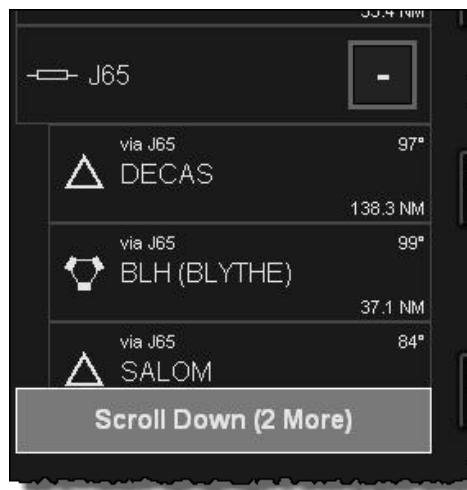
If the route contains an airway sequence, the application initially displays it in a collapsed state. An airway sequence is made up of multiple connected airway segments along an airway. Each airway segment connects only two adjacent waypoints on the airway. Select the plus sign to expand and view the entire airway sequence. When the airway is expanded, the tags on each waypoint reflect the distance and bearing from the previous waypoint.

The following example is a collapsed airway sequence.



Collapsed airway sequence

When you expand the sequence, the application displays the sequence followed by its multiple airway segments. Tags on each airway segment reflect the distance and bearing from the previous waypoint. If the application cannot display the entire list of segments, it provides a scroll button so that you can view the hidden segments.

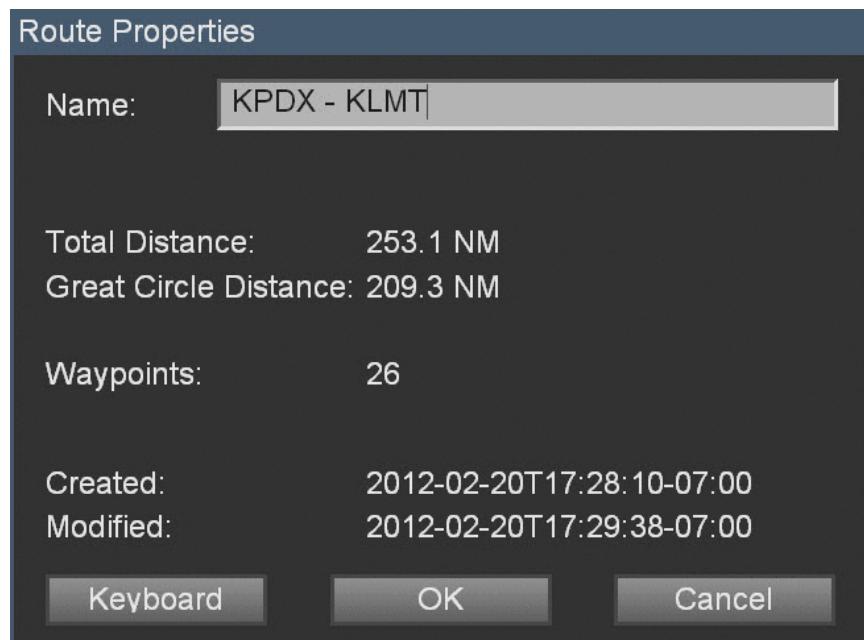


Expanded airway sequence with scroll button

Segments display additional information such as the waypoint icon, identifier, its directional degrees, and its distance in nautical miles.

Understanding Route Properties

The Route Properties dialog box provides basic information about the route. To access route properties, start by ensuring that a route is displayed on the map. Then select the **Details** button and select the route.



Route Properties dialog box

Creating a Route

Before you can load routes and display them on the map, you must first create one or more routes.

Enroute provides three ways to create routes:

- Airway Routing
- Plain Language routing
- Latitude/Longitude routing

Of these methods, Airway Routing is typically the most efficient way to enter routes. Although a physical keyboard is not required to enter routes, it enables you to create routes more efficiently.

NOTE: Routes that you create in the Enroute application remain in system memory only for the current EFB session. When you close a flight and then reinitialize the EFB, or when you power off the EFB, the routes are erased from system memory.

Before You Begin

Regardless of which method you use to create routes, when you select the **New Route** button to create a route, one of two things happen:

- If the EFB is connected to aircraft systems and can detect an origin and destination airport, those airports are included in each new route, and the route takes its name from these waypoints. You can delete these airports if they do not apply to the route that you are creating. When you enter a new origin and destination, the name of the route changes to match those airport entries.
- If the EFB cannot detect an origin and destination airport, it assigns a Date_Timestamp (for example, 20130120_144734) as the route name. After you enter an origin and a destination, Enroute updates the name of the route to match those airport entries.

Example: Creating a Route by Using Airway Routing

You can create a route using airway routing, which is also known as "dot notation."

You can enter point-to-point waypoints to complete your route. You separate airways by a single period (dot). You use two dots to connect waypoints direct without an airway. For instance, KADW..ETAR indicates that the two airports are connected directly without using an airway. When you include airways within a route, be aware that airways always connect through established navaids.

If the EFB has an Origin and Destination already set, the route planning feature automatically creates a new route with those two points as the initial and final fix. In the following example, assume that in the preflight setup, KPDX (Portland Intl) and KLMT (Klamath Falls) have been defined as the origin and destination airports respectively. In this example, you are creating a route between these airports by using airway routing. For this route, you intend to fly from the origin airport direct to a navaid (BTG), and then along V23. At OED, you will fly along V122 to LMT, and then direct to KLMT. Follow these steps:

1. Select the **New Route** button.

The application creates a route with KPDX and KLMT as the origin and destination, respectively.

2. In the **Enter Waypoint** text box, type the following text:

BTG.V23.OED.V122.LMT

3. Select **Insert Waypoint**, and then choose the insertion point *between* the two airports.

Note that in this example, you must include waypoint OED because airways connect through established navaids and OED is the point where these two airways intersect.

Example: Creating a Route by Using Plain Language

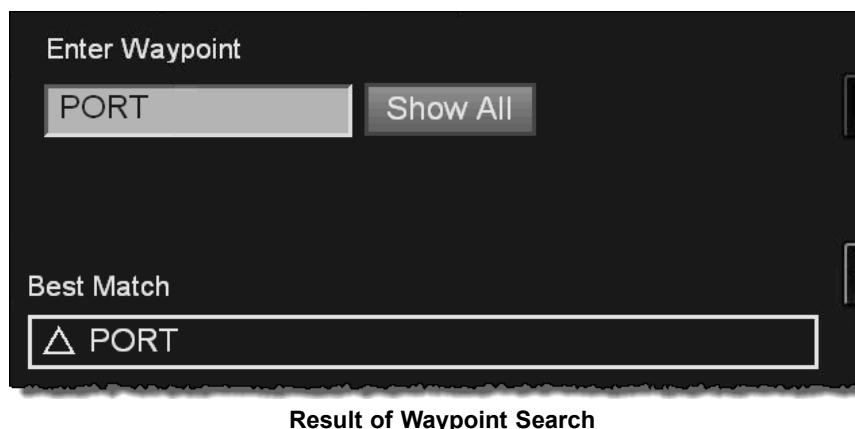
You can create a route and enter waypoints by typing information directly in the Enter Waypoint box. The following example shows how to create a basic route. This route will have a departure airport and an arrival airport.

1. Select the **New Route** button.

The application opens a new route and assigns either an origin and destination airport or a Date_Timestamp (for example, 20110120_144734).

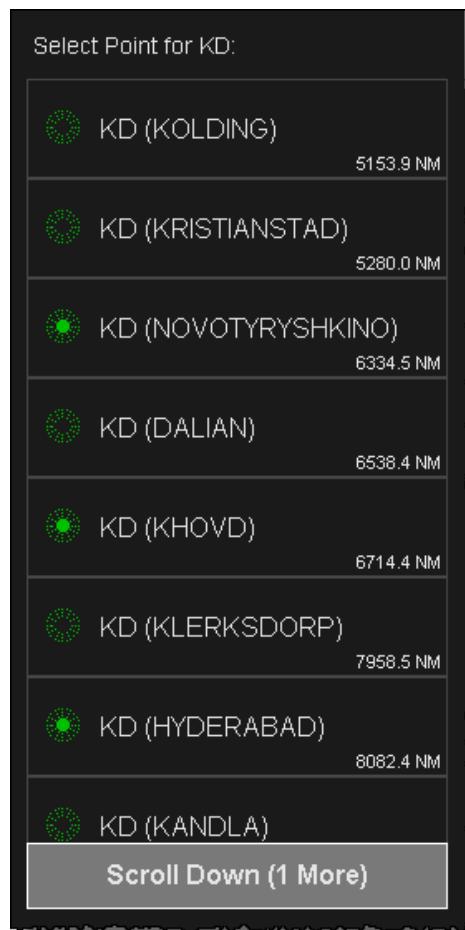
2. In the **Enter Waypoint** text box, enter either the ICAO identifier, the IATA identifier, an airport name, a city name, or a text string.

If you enter a text string that presents the application with more than one possibility, the best match appears below the Enter Waypoint text box.



NOTE: The application displays only results that match exactly the text string that you enter. If you enter two characters, the application searches for a waypoint match, but does not include airports. You must enter three or more characters to include airports in a global search.

3. Select the **Show All** button to display all possibilities.



Waypoint list after selecting *Show All*

4. When you locate the appropriate airport or waypoint, select the **Append Wpt** button.
5. In the **Enter Waypoint** text box, enter the next waypoint, and then select **Append Wpt**.
Continue adding waypoints until your route is complete.

NOTE: Use the **Remove WPT** button to remove the origin and destination airports if the application entered them and they do not apply to the current route.

Creating a Route by Using Latitude and Longitude Routing

You can enter the latitude/longitude information as part of multiple waypoints (when the waypoints are separated by two dots). Keep in mind that you cannot use latitude/longitude information in airway strings because airways connect through established navaids.

NOTE: The syntax for entering latitude/longitude information might seem complex, but it provides substantial flexibility.

Latitude/longitude strings must always contain both a latitude and a longitude. Each hemispherical portion of the latitude/longitude string that you enter in the Enter Waypoint text box must start with a hemisphere character (N or S for latitude; E or W for longitude) and must contain at least one number. For example,

N45E13 is a complete and valid string. The application attempts to parse the string you enter from one to three floating-point numbers, as follows.

- If the application encounters one number string (for example, N45), it interprets the string as decimal degrees.
- If the application encounters two number strings (for example, N45 05), it interprets the string as integer degrees and decimal minutes.
- If the application encounters three number strings (for example, N45 05 27), it interprets the string as integer degrees, integer minutes, and decimal seconds.

The same rules apply to longitude except where noted. You do not need to separate the latitude from the longitude with a space, but the space makes the text more readable. The following table shows valid example strings for latitude.

Valid Strings for Latitude

Latitude	Note
N45	North 45 degrees.
N 45	North 45 degrees.
N 45.12456	North 45.12456 degrees.
N 45 05.423	North 45 degrees, 05.423 minutes. Use a leading zero for numbers under 10.
N 45 05	North 45 degrees, 05 minutes.
N 45 05 27	North 45 degrees, 05 minutes, 27 seconds.
N 45 05 27.267	North 45 degrees, 05 minutes, 27.267 seconds.
N45-05-27	One space after hemisphere character not required.
N 45:05:27	North 45 degrees, 05 minutes, 27 seconds.
N30410910	Interpreted as Nhhmmssss (decimal seconds).

The following table shows strings that are *not* valid.

Invalid Strings for Latitude

Latitude	Note
N	Must have a number.
N 192	Degrees must be less than or equal to 90 for latitude. Note that for <i>longitude</i> , degrees must be less than or equal to 180.
N 45 72	Minutes must be less than 60.
N 45 28 97	Seconds must be less than 60.
N450245	Need characters separating degrees, minutes, and seconds.

The application resolves latitude/longitude strings in the format specified in the Display options.

Loading and Unloading Routes

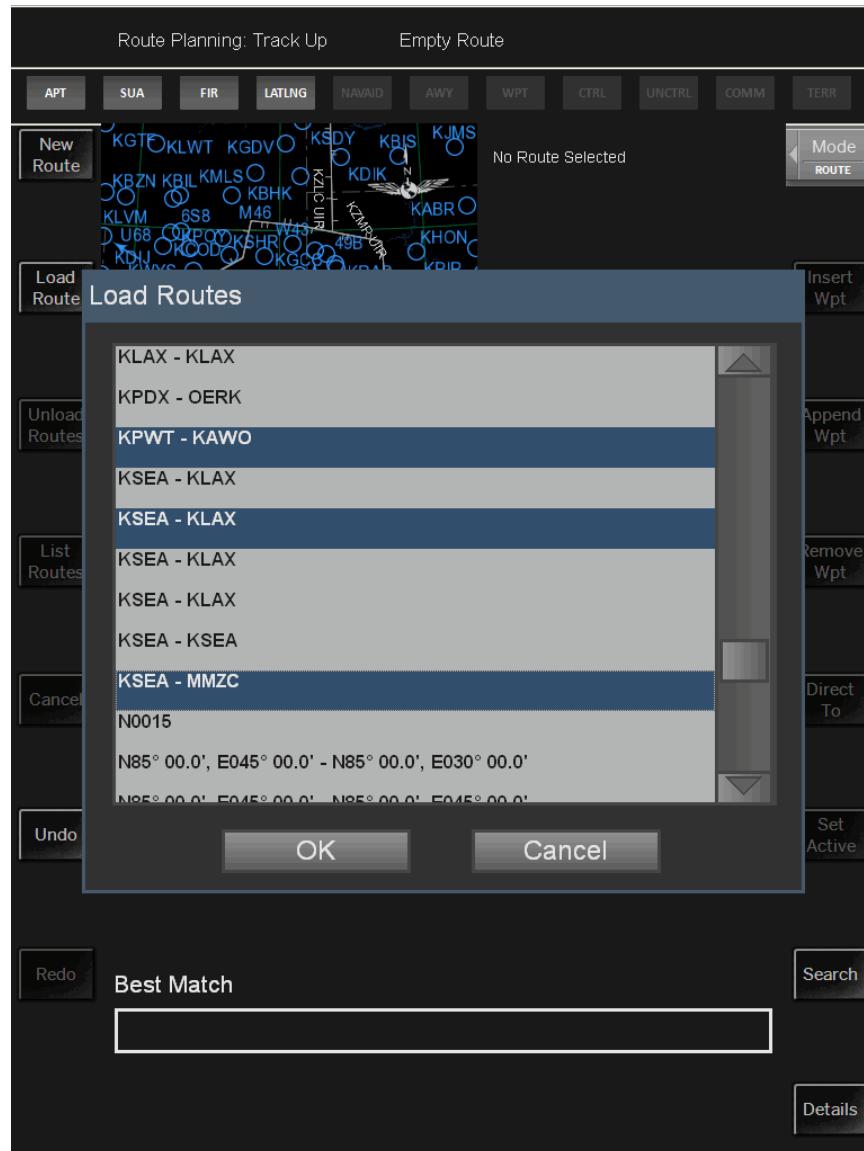
You must first create one or more routes before you can load a route and use it in Enroute Navigation mode. After you load a route, you can modify it if necessary. See the “Modifying a Route” section for more information about modifying routes. When you no longer need the routes that you created, you can unload them by selecting the **Unload Routes** button.

NOTE: When you select the Unload button, Enroute removes all of the currently loaded routes from the map, but the routes remain in memory for the current EFB session. If you need to access any of the routes that you unload, you can reload them.

To load a route:

1. On the Route Planning page, select **Load Route**.

The application opens the **Load Routes** dialog box, which displays a list of the routes created during the current session.



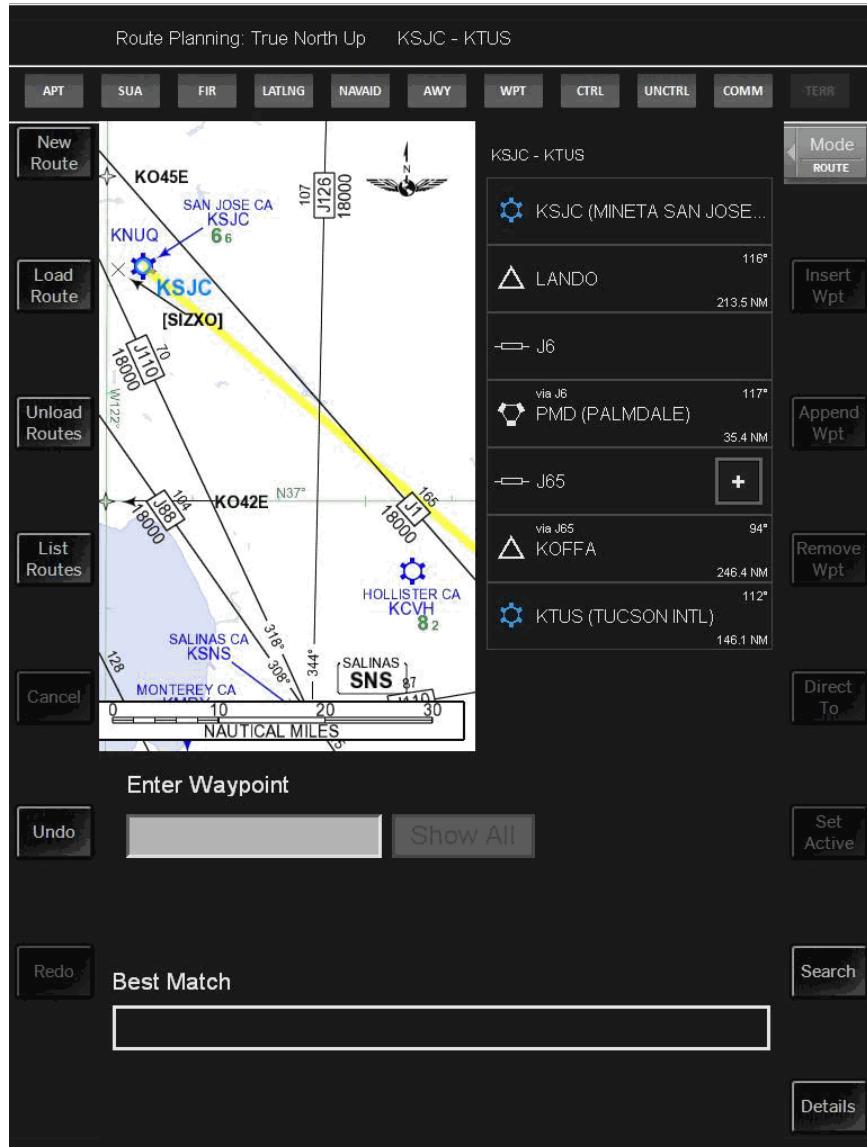
Load Routes dialog box, showing multiple routes selected

2. Select one or more routes for loading, and then select **OK**.

Enroute loads the routes onto the map.

3. Select **OK**.

The application displays the active route on the map and lists the waypoints in the route definition list. To make another route the active route, select **List Routes** to see the list of loaded routes, and then select another route. That route becomes the active route.



A loaded and active route

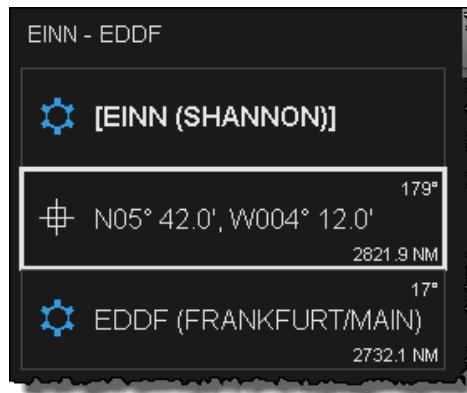
Modifying a Route

For any route, you can:

- Add and remove waypoints.
 - Use Direct To.
 - Add airways.
 - Set waypoints as active.

Example: Adding a Single Waypoint

You can add a waypoint to an existing route. This simplified example uses a route from EINN (Shannon Airport) to EDDF (Frankfurt/Main Airport) that has a single waypoint.



Example Before Waypoint is Added

To add a waypoint to this route:

1. In the **Enter Waypoint** text box, type **STU**. The Best Match is STU (STRUMBLE), which is the waypoint that you want to add.
2. Select **Insert Wpt**.

The application indicates three possible insertion points. Remember—if you insert a waypoint in an incorrect location, you can select the **Undo** button to remove it.

3. Select the **Insert** button located after EINN but before the N52.0, W04.2 waypoint. The application inserts the new waypoint, adds it to the route, and modifies the map to include the new waypoint.



Route modified with an additional waypoint

Removing a Waypoint

You can remove an individual waypoint within an airway sequence. When you remove an intermediate waypoint, any remaining airway sequences before or after the removed waypoint (or both) are shown as an airway item in the route list, with an entry and exit point adjusted accordingly. Note that when you select a route list item, the application highlights that item on the active route on the map. For example, to remove the waypoint named STU that was added in the “Example: Adding a Single Waypoint” section, either select that waypoint, and then select **Remove Wpt** or select **Undo**.

The **Remove Wpt** button is dimmed for route list items that cannot be removed.

Using the Undo and Redo Button

Use the **Undo** button to reverse your last action, such as inserting a waypoint. Use the Redo button to restore your last action, such as reversing an undo action.

Using the Cancel Button

When you select the **Cancel** button, the application:

- Clears the currently selected waypoint from the map and all route-planning panes.
- Clears any text that you entered in the waypoint entry pane.
- Sets the mode for the route pane to the waypoints mode.
- Redraws all views.

Using the Direct To Feature

Use the Direct To feature to move directly from the aircraft's current location to another waypoint. When you use this feature, the application removes all intermediate waypoints and airways. For example, you might use this feature when ATC clears you directly to a point.

When you select the Direct To button, the application removes all intermediate waypoints and airways from the route definition list.

NOTE: The application disables the Direct To feature if the aircraft's present position is unavailable.

To use the Direct To feature:

1. If necessary, add the point that you have been cleared direct to.
2. Position the insertion arrow above the Direct To point.
3. Select **Direct To**.

The application adds a waypoint to designate the currently reported aircraft location. All remaining intermediate waypoints still appear as an airway item in the route list, but the selected Direct To waypoint is now the new entry waypoint.

Adding an Airway

You use airway routing to add airways. Add an airway using the requirements and rules set in the "Create a Route Using Airway Routing" section.

Setting a Waypoint as Active

Select a waypoint and then select the **Set Active** button to set that waypoint as your active point. Active waypoints are sequenced automatically. To override automatic sequencing, use **Set Active**.

Understanding the Active Route

The active route is the route that the aircraft is on when connected to the aircraft systems.



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TERMINAL CHARTS

The Terminal Charts application obtains its data from Aircraft Data Interface (ADI), which acquires its information from the EFB Common Services Library (ECSL) and ultimately from the aircraft's 429 data bus. This application provides pilots with access to electronic terminal charts, which are images of maps, airport diagrams, or textual information that are associated with specific airports. Charts can include airport, departure, arrival, approach, and airspace charts; chart change notices; and additional information. Jeppesen-provided charts are delivered by Jeppesen standard and tailored terminal chart services. EFB Content Packager-created content is managed by the customer. This application operates on the Boeing Class 1, Class 2, and Class 3 EFB.

Terminal Charts is sold as an “incomplete system.” It cannot run independently from the Boeing EFB software, which provides the framework for the Terminal Charts application, the interface to the aircraft, and the interaction with other integrated applications.

Pilots use the Terminal Charts application to perform the following tasks:

- Locate and display Jeppesen or customer-specific terminal charts
- View chart change notices
- Define airports along a route (origin, destination, and alternates) and create and edit chart clips
- Load charts for each airport in the current flight plan, even when that flight plan is updated or modified; if necessary, pilots can manually enter airport information
- Select charts based on revision date (when chart effectiveness applies)
- Search for airports in the database by ICAO/IATA airport codes, airport name, and city name
- Find the nearest airport with respect to the aircraft’s current GPS location
- Filter an airport’s charts by type
- Preview and add charts to the chart clip if they are of the same type as the chart being viewed (Quick Use)
- Transfer a chart clip from one EFB device to another
- Toggle between the AMM application and the Terminal Charts application (“interapplication linking” or “LSK Swap”)
- Print the current chart, all of the charts contained with an airport chart clip, or all of the charts associated with an airport if a printer is installed on the flight deck

Using the Terminal Charts application can decrease paper-management tasks on the flight deck, eliminate the need for paper revisions before a flight, and enable pilots to load charts for each airport in the current flight plan, even when that flight plan is updated or modified.

Version 5.0.0 contains the following new Terminal Charts features:

- Ability to view customer-specific charts created using the Jeppesen EFB Content Packager
- Support for Familiarization and Qualification charts
- Support for AMM to display automatically when weight-on-wheels is TRUE

Using the Terminal Charts Application

The Terminal Charts application exhibits the following standard EFB behavior:

- To launch the application, select the application button on the MAIN MENU screen. Your organization defines the text of the button label.
- To exit the application, select the **MENU** bezel button to return to the MAIN MENU screen.

- To view system messages (indicated by MEMO or MSG notifications), select the application button on the MAIN MENU screen. The application displays the appropriate message.
Follow the on-screen instructions to acknowledge or resolve each MEMO notification.
- To view application faults, open the SYSTEM FAULT LOG screen. The application also displays some on-screen fault notifications during flight under certain conditions. For more information, see the “Troubleshooting” section.

For more information about standard EFB behavior, see the “Using the EFB” chapter.

Upon flight initialization, Terminal Charts performs the following activities:

- Logs the airplane tail number
- Resets all configuration settings to default values
- Verifies database effectivity
- Clears all route segments
- Sets origin and destination airport route segments (if connected to avionics)

Understanding Database Effectivity

Terminal Charts obtains its terminal chart information from a JDS or JIT database, which your organization installs as a part onto the Class 1, Class 2, or Class 3 EFB. The content of the Terminal Charts database depends on your organization’s data subscription. If your organization is using a JIT database, it will also need to have the appropriate coverages.

Jeppesen releases updated Terminal Charts data in two-week cycles. Terminal Charts databases are associated with an effective date, known as the database **effectivity** date.

Any content that organizations create and package using the EFB Content Packager is delivered in a JDS database. Although the effectivity dates of customer-created packages are not required to coincide with Jeppesen database effectivity dates, best practice is that these dates match the effectivity dates of their Jeppesen content. The IDENT screen displays information about the customer-created database and the Jeppesen-supplied database.

FAULT	IDENT	SHOW
MEMO		
A/C MODEL: 787-8		
TAIL ID: N787BA		
DATE: MAY13/11		TIME: 1701z
EFB EFFECTIVITY CONFIGURATION		
77OP31_	BOE3A-77P3-w00F	
PUG_	BOE43-PUGX-w00F	
777MEL_	BOE58-77ML-w00F	
77FCTM_	BOE5C-77FC-w00F	
87FM12_	BOE5D-87FM-w00F	
CHORD_	BOE3C-C0RD-w00F	
CHATL_	BOE43-CATL-w00F	
777QRH_A	BOE42-77RH-w00G	OCT20/09-DEC31/09
77FOM_	BOE52-77FM-w00F	JAN01/09-DEC01/09
TERM CHARTS DATABASE	JEP22-JDS1-00VG	FEB04/11-FEB23/11
CIC DATABASE	ANA57-CHTD-0002	MAR14/11-APR14/11

IDENT screen listing Jeppesen- and customer-created database content

Upon flight initialization, the Terminal Charts application verifies the effectiveness of Terminal Charts databases that have been loaded onto the EFB. If any of the databases are out of date; the application displays a MEMO notification, and you must select **CONTINUE** to confirm that you want to use the out-of-date database before you can access the Terminal Charts application.

MEMO TERMINAL CHARTS
DATABASE EFFECTIVITY

Database Effectivity: JUN 23/06 - JUL 06/06

Terminal Charts may contain outdated information.

Obtain a new database as soon as possible.

Select Continue to enter Terminal Charts.
Otherwise select the Main Menu to exit.

CONTINUE

Databases are out of date

NOTE: If your organization allows its subscription to lapse, you will no longer receive database updates. Although Terminal Charts will continue to operate, flying without updated data is not recommended, and you will continue to receive notifications that the database is out of date.

Searching for Airports

You can search for airports in the AIRPORT SEARCH or ROUTE SETUP screens.

Search strings for potential airports can include ICAO or IATA airport identifiers, airport names, or city names.

To access the search feature from the ROUTE SETUP screens, simply type a search string into one of the available fields and choose one of the search buttons. The Terminal Charts application displays all airports that match the search string.

To access the AIRPORT SEARCH screen from the CHART CLIP screen, select the **AIRPORT SEARCH** button. Perform this task if you need to locate charts for an airport that is not included in your route.

For more information about searching for airports, see the “Managing Airports” section.

Managing Airports

Use the ROUTE SETUP screens to define the airports for your route. You can set up your origin and destination airports and define up to four alternate airports, and you can make updates to airports at any time. If necessary, use the search feature to search for any airport in your organization’s Terminal Charts database.

If you are accessing the Terminal Charts application for the first time after initializing the flight and if the database is current, the application displays the ROUTE SETUP - Origin and Destination screen, which contains routing information and airport search options.

NOTE: If you have not yet initialized the flight and the application receives information from the FMS, the application displays the chart clip of the origin airport. For information about chart clips, see the “Working with Chart Clips” section.

TERMINAL CHARTS ROUTE SETUP								1 / 2																																															
ORIGIN				DESTINATION																																																			
								USE ARPTS FROM FMS																																															
SEARCH IDENT				SHOW ALTS																																																			
SEARCH ALL				COMPLETE																																																			
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ROUTE SETUP - Origin and Destination screen

The ROUTE SETUP - Alternates screen contains alternates information and airport search options.



ROUTE SETUP - Alternates screen

The following table describes the features on the ROUTE SETUP screens.

Features on the ROUTE SETUP screens

Callout	Description	Function
A	Airport information	Contains airport information: ORIGIN and DESTINATION or ALT[1–4], depending on the screen
B	Airport search options	Provide the same search functionality as other EFB airport search screens.
C	ROUTE SETUP menu buttons	Perform functions that are specific to setting up routes; see the "ROUTE SETUP Menu Options" table.

The following table describes the ROUTE SETUP menu options.

ROUTE SETUP Menu Options

Menu Options	Description
USE ARPTS FROM FMS button	Pulls in origin and destination airport information from the FMS
SHOW ALTS button	Displays the ROUTE SETUP - Alternates screen
SHOW ORIG/DEST button	Displays the ROUTE SETUP -Origin and Destination screen

Setting Origin and Destination Airports

Depending on your application's connectivity to avionics, Terminal Charts might obtain the origin and destination airport information from the FMS. If this information is available from the FMS, the airport ICAO identifiers appear in the ORIGIN and DESTINATION fields. The application outlines the fields in green to indicate that the fields were populated by an external source.

If necessary, you can modify this information by selecting the field and typing the four-character ICAO or IATA identifier of the new airport. If you manually change an entry in the ORIGIN or DESTINATION field, the green outline disappears.

TERMINAL CHARTS
ROUTE SETUP

ORIGIN KDEN DENVER INTL	DESTINATION KSEA SEATTLE-TACOMA INTL																																																					
USE ARPTS FROM FMS																																																						
SEARCH IDENT	SHOW ALTS																																																					
SEARCH ALL	COMPLETE																																																					
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Indications that origin and destination information has been imported

If the origin and destination airport identifiers do not appear in the fields but are available from the FMS, select the **USE ARPTS FROM FMS** button to display that information.

If FMS information is unavailable, the ORIGIN and DESTINATION fields are blank. Select the appropriate field and type the four-character ICAO or IATA identifier, or enter a character and select one of the search buttons to locate and select the airport.

To set origin and destination airports after those fields have been populated, select **COMPLETE**. Terminal Charts displays the chart clips for the origin and destination airports in your route.

NOTE: You do not need to add your alternate airports now, although you can. To add alternate airports, select **SHOW ALTS** and define the alternate airports. See the "Setting Alternates" section for more information about adding alternates.

Setting Alternates

The FMS has no information about alternate airports, so even if you are connected to the avionics, you must identify alternate airports manually. You can set up to four. Select the appropriate field and type the four-character ICAO or IATA identifier, or enter a character and select one of the search buttons to locate and select the airport.

Set your alternate airports in the ROUTE SETUP - ALTERNATES screen or the CHART CLIP screen.

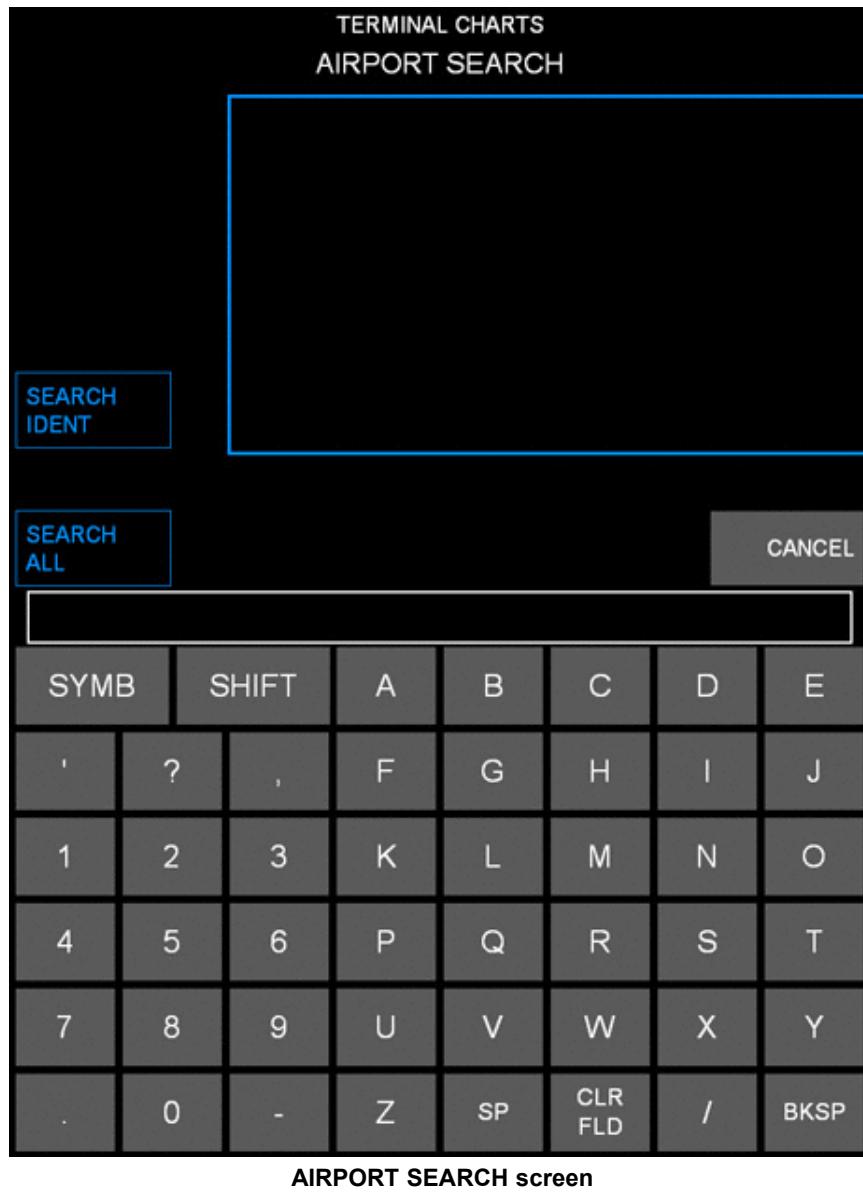
To define alternate airports from the ROUTE SETUP - ALTERNATES screen:

1. From the ROUTE SETUP - Origin and Destination screen, select **SHOW ALTS** to view the ROUTE SETUP - ALTERNATES screen.
2. Define the alternate airports.
3. Select **COMPLETE** to view the chart clips for the airports in your route.

To define alternate airports from the CHART CLIP screen:

1. Select the **AIRPORT SEARCH** button.

The application displays the AIRPORT SEARCH screen.



AIRPORT SEARCH screen

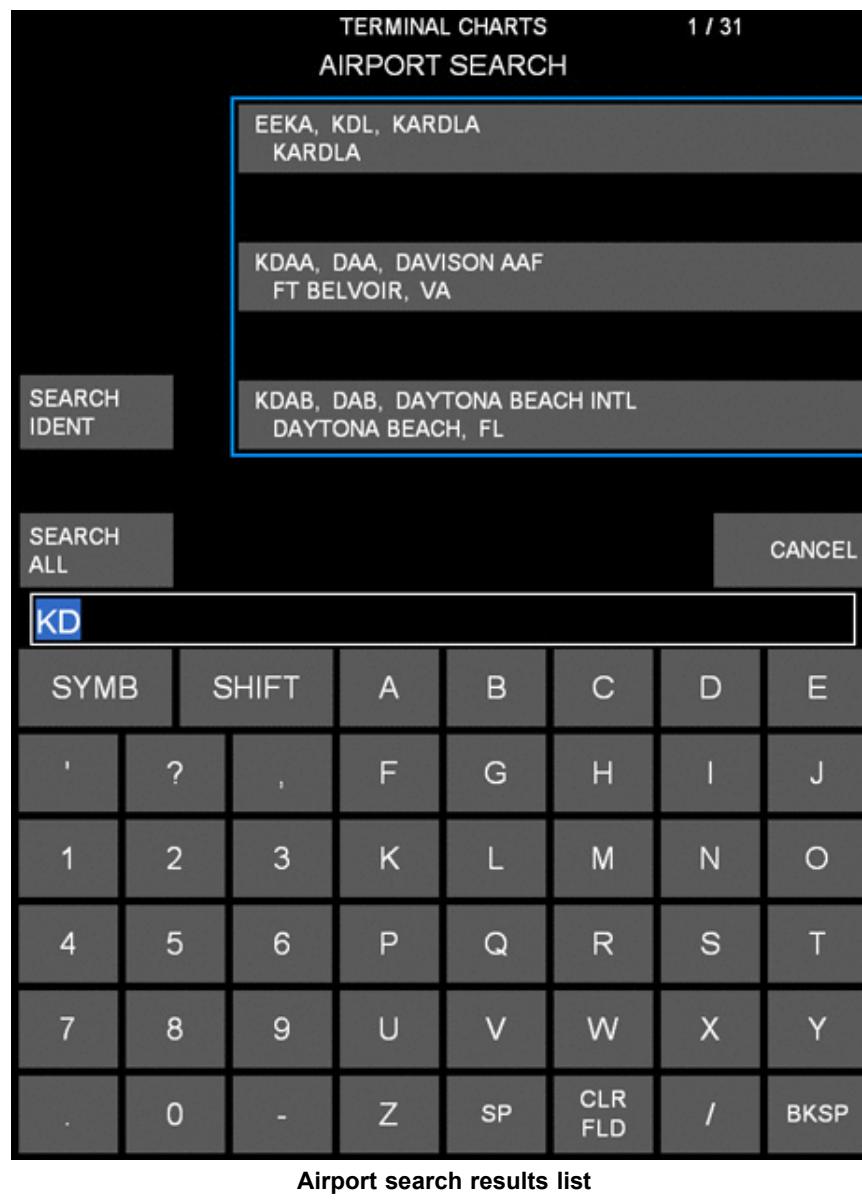
2. Use the virtual keyboard to type the first few characters of the airport identifier (ICAO or IATA), airport name, or airport city name into the search field.

The more characters you enter, the more refined the search.

3. Select the appropriate search button.

- Select **SEARCH IDENT** to search only by ICAO or IATA identifier.
- Select **SEARCH ALL** to search by ICAO or IATA identifier, airport name, or airport city name.

The system retrieves and displays the airports that match your search criteria. If the list contains more than three airports, use the **PGUP** and **PGDN** bezel buttons to scroll through it.



Airport search results list

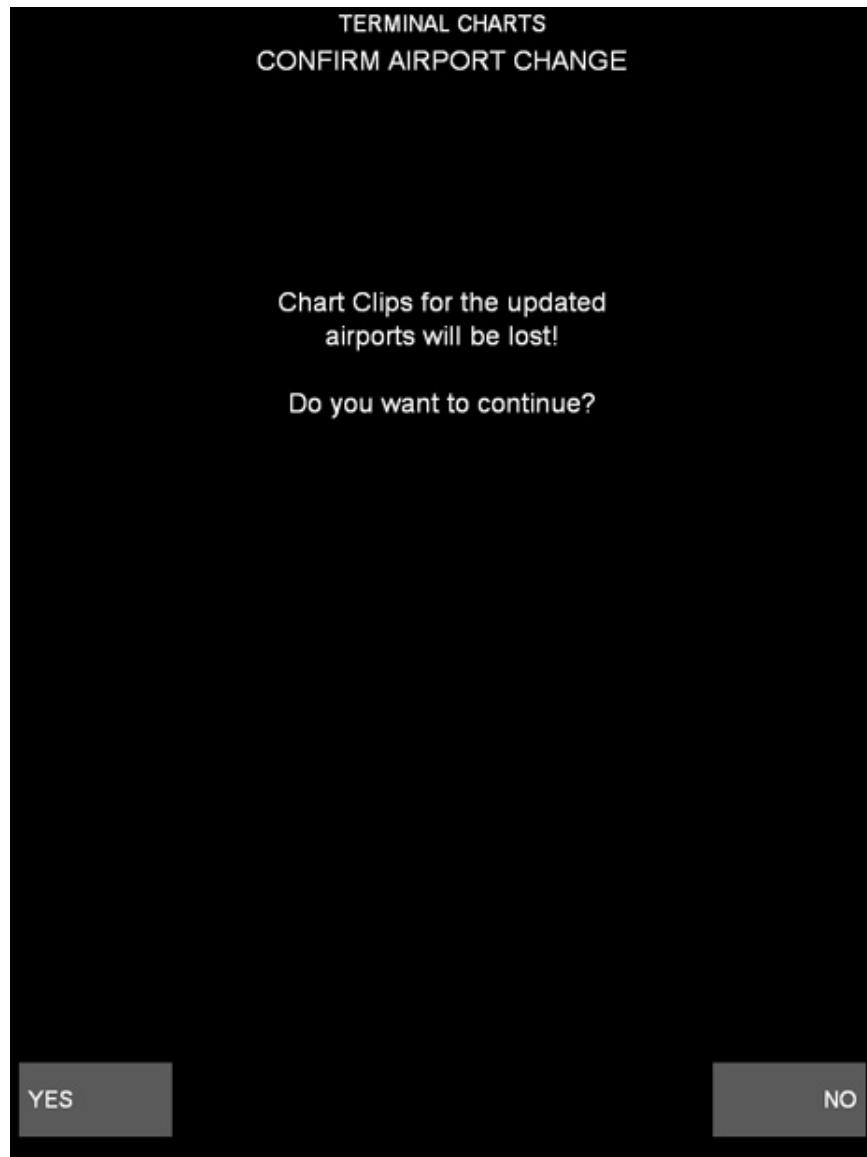
- Select the airport from the search results list.

The application displays the map for the selected airport. Select **SET AS ALTERNATE** to set the airport as an alternate for your route. Each time you select an alternate, the application places the ICAO identifier into the first available alternate field.

Updating Airports

When you define an airport in your route, Terminal Charts places the default charts for each route segment into the chart clip. When you remove an airport from your route, Terminal Charts deletes the route segments and all of the charts that are associated with it. If you remove an airport and do not replace it (for example, you remove the airport from ALT4), the application recognizes the selection as "empty."

If you replace a defined airport, the application notifies you that such a change will delete the previous airport's chart clip. Select **YES** to continue.



Notification that Terminal Charts will delete previous chart clip

Understanding Chart Effectivity

Charts are updated when airport information changes. For example, an airport runway might be shut down temporarily because of construction. For every database delivery cycle, Jeppesen delivers information about the charts and airport information that have changed since the previous delivery; however, some charts might be scheduled to undergo changes in the middle of a database release cycle. In such cases, the database might contain two charts for a particular airport: One that is effective at the start of the database cycle and one that becomes effective mid-cycle.

If an airport chart is current, Terminal Charts automatically adds it to the chart clip when you define that airport for your route. If an airport chart will change within 24 hours of your flight date, you must select a) the current chart before it reaches a new effective date or b) the chart that will become effective within 24 hours and add it to the chart clip. Terminal Charts does not pick a chart for you. See the "Viewing Charts" section for more information.

Revisions go into effect at midnight Zulu time of the effective date. On the Class 1 EFB, Terminal Charts reference the operating system time. On the Class 2 or Class 3 EFB, Terminal Charts also reference the operating system time, but the operating system acquires its date and time information from the aircraft 429 data bus.

For example, suppose you selected a database on a flight to Seattle. Some of the charts for the Seattle airport (KSEA) were revised on March 1 to coincide with the database cycle, but the charts will not become effective until March 13. The database contains both charts. If you add the KSEA airport to your flight within 24 hours of the revised chart becoming effective, the application displays a notification that the airport contains charts in its clip that are effective on different dates.

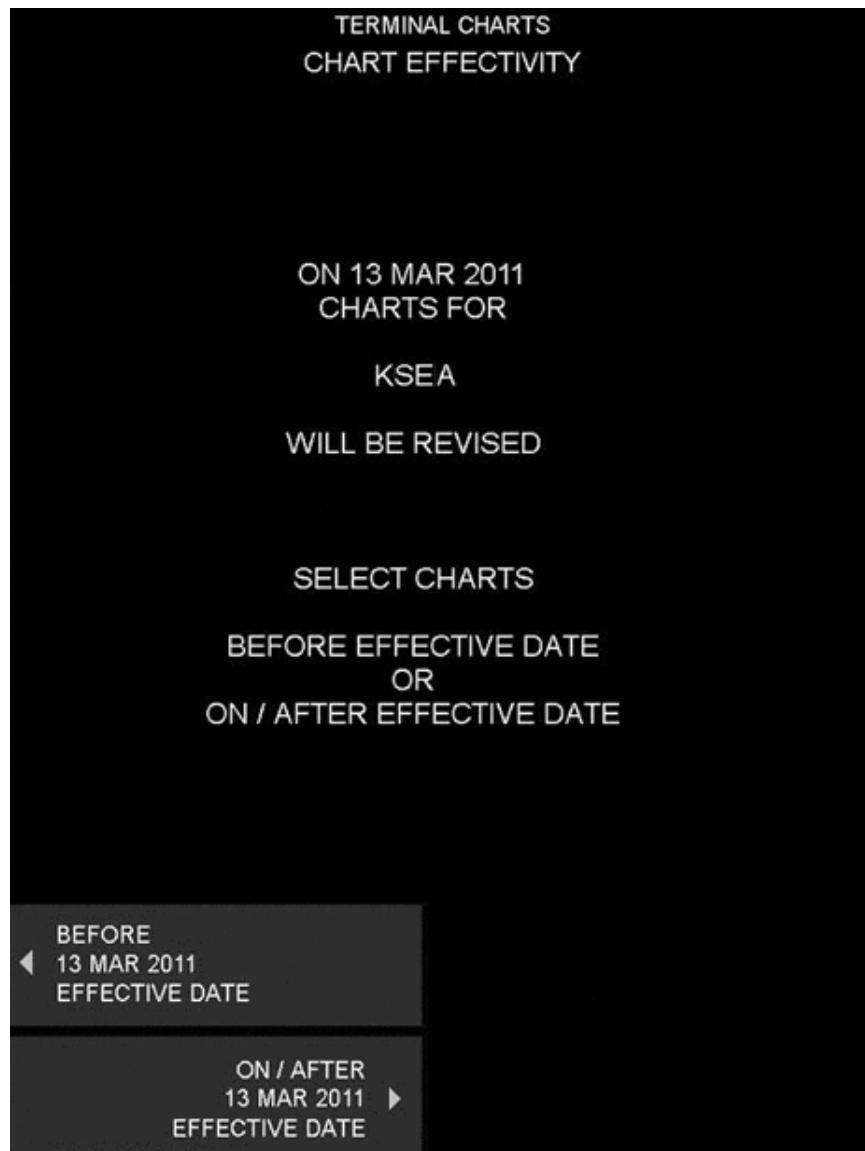


Chart effectiveness notification

In most scenarios, you will select the current version of a chart; however, you might need to view a different version of the chart under the following and similar situations:

- Red-eye flights when you depart on a particular date and arrive on the following date, with charts becoming effective on the arrival date.

- Flights that involve crossing the International Date Line, when the flight originates on a particular date and arrives on the preceding date, with charts becoming effective on the departure date.
- When charts are effective at a time other than 00:00 UTC. Terminal Charts does not recognize when a chart is effective as of a specific time and you should confirm that you pulled the correct version.
- When a chart is rescinded through chart change notices.
- When charts are revised on consecutive days.

The Terminal Charts application enables you to view:

- Terminal charts that are current today
- Terminal charts that will become effective within 24 hours
- All terminal charts for an airport that are currently or will be effective within 24 hours

To select the current or future chart based on effectiveness date, select the appropriate chart revision from the CHART EFFECTIVITY screen.

- If you will fly to or from the airport before the revision date, select the **BEFORE EFFECTIVE DATE** to add the existing chart to your clip.
- If you will fly to or from the airport on or after the revision date, select the **ON/AFTER EFFECTIVE DATE** to add the revised chart to your clip.

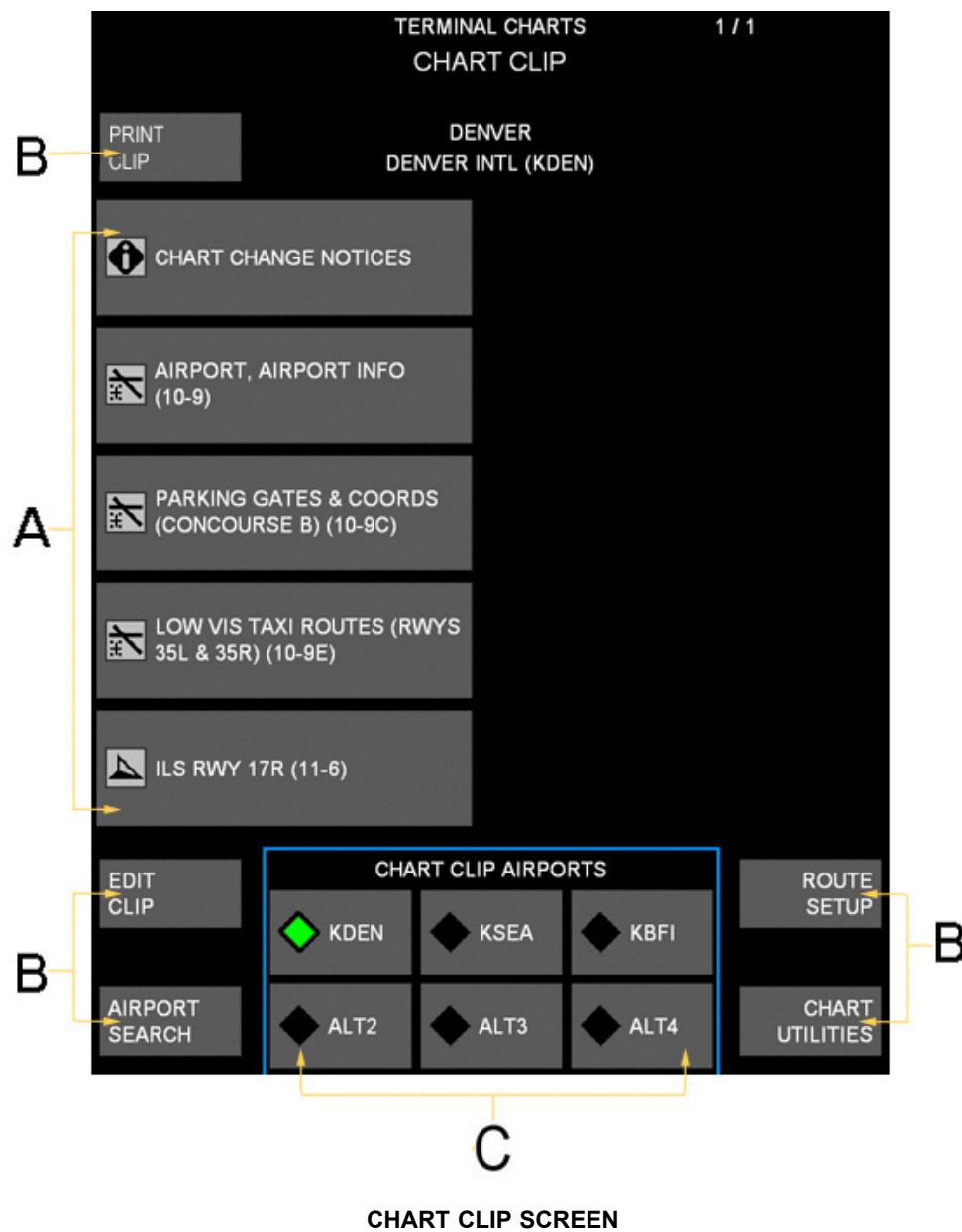
Working with Chart Clips

Chart clips are compilations of the default charts and other information (such as chart change notices) that is associated with the airports you added to your flight. After you define the airports for your route, you can modify the clips. The default contents of the chart clip are configurable by your administrator, but they typically consist of the primary chart (usually the 10-9 or 20-9) and Jeppesen chart change notices for that airport.

The Terminal Charts application creates a chart clip for every defined airport. After you define the origin, destination, and alternate airports, you can select the charts you expect to use for the flight. Chart Change Notices are automatically added to each chart clip.

NOTE: If an airport chart is current, it is automatically added to the chart clip for each airport that you define for your route; however, if an airport chart will change within 24 hours of your flight date, you must select the current chart before it reaches a new effective date or the chart that will become effective within 24 hours and add it to the chart clip. The system will not automatically pick a chart for you. See the “Viewing Charts” section for more information.

After you set up your route and select COMPLETE, Terminal Charts displays the CHART CLIP screen for the origin airport.



The following table describes the features on the CHART CLIP screen.

Features on the CHART CLIP screen

Callout	Description	Function
A	Chart clip	Contains all charts that have been added to the chart clip.
B	CHART CLIP menu buttons	Perform functions that are specific to chart clips; see the "CHART CLIP Menu Options" table.
C	CHART CLIP AIRPORTS selector box	Enables you to select any of the airports that have been defined for your route so that you can view their associated chart clip.

The following table describes the CHART CLIP menu options.

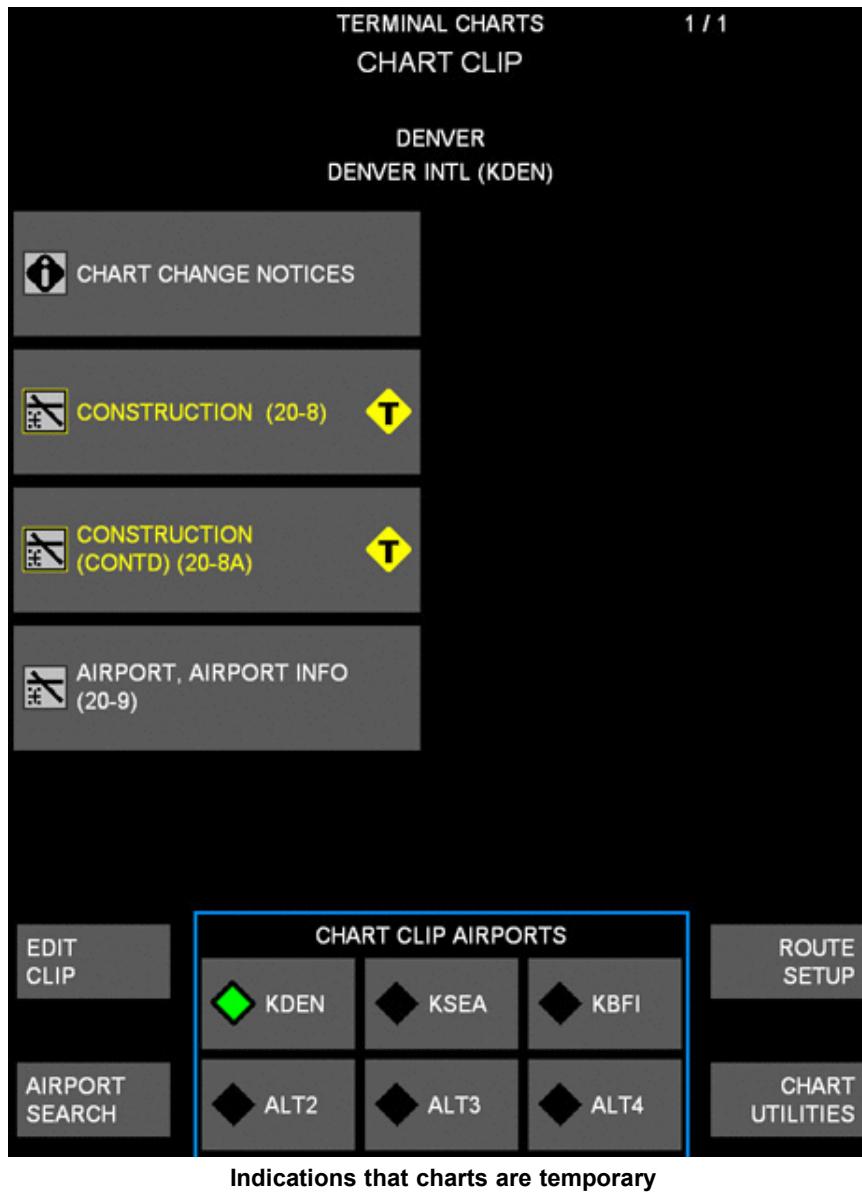
CHART CLIP Menu Options

Menu Options	Description
PRINT CLIP button	Prints the entire chart clip. For more information, see the “Printing Charts” section.
EDIT CLIP button	Displays the EDIT CHART CLIP screen. For more information, see the “Editing Chart Clips” section.
AIRPORT SEARCH button	Displays the AIRPORT SEARCH screen. For more information, see the “Searching for Airports” section.
ROUTE SETUP button	Displays the ROUTE SETUP - Origin and Destination screen. For more information, see the “Managing Airports” section.
CHART UTILITIES button	Displays options for importing the chart clip from the offside EFB, locating nearest airports, and viewing all charts. For more information, see the “Working with Chart Utilities” section.

Viewing Chart Clips

To view the chart clip for an airport in your route, select the airport in the CHART CLIP AIRPORTS selector box.

For each chart in the clip, Terminal Charts indicates whether it is a customer-created chart, a temporary chart, or a color chart. In addition, the icons on the chart button identify the chart type. If necessary, choose the **PGUP** and **PGDN** to scroll through the charts in the clip.



Editing Chart Clips

Terminal Charts filters the list of all charts based on the chart type filter criteria.

When chart effectiveness applies, you can select one of two date range choices. Terminal Charts displays the list of charts for the date range you selected.



EDIT CHART CLIP screen with effectivity options

The following table describes the features on the EDIT CHART CLIP screen.

Features on the EDIT CHART CLIP screen

Callout	Description	Function
A	Chart buttons	Identifies the chart; if the chart is included in the clip, Terminal Charts displays a green check mark in the check box.

Callout	Description	Function
B	EDIT CHART CLIP menu buttons	Perform functions that are specific to editing chart clips; see the “EDIT CHART CLIP Menu Options” table.
C	CHART TYPES selector box	Enables you to limit the charts on the screen to a selected chart type or display all charts. For more information, see the “Viewing Charts” section.

The following table describes the EDIT CHART CLIP menu options.

EDIT CHART CLIP Menu Options

Menu Options	Description
Preview button	Displays a preview of the chart. For more information, see the “Previewing Charts” section.
Chart button	Displays the chart type icon, the name of the chart, and a check box, which identifies whether the chart has been added to the chart clip. For more information, see the “Viewing Charts” section.
BEFORE EFFECTIVE DATE button	Displays charts that are effective before the specified date
ON/AFTER EFFECTIVE DATE button	Displays charts that are effective on or after the specified date
CANCEL CHANGES button	Cancels all changes and returns you to the CHART CLIP screen.
COMPLETE button	Applies the changes to the chart clip.

When you edit the chart clip and your flight date is within 24 hours of a chart reaching a new effective date, you will be required to select the version of the chart before the scheduled revision, or the version of the chart on or after the revision. The application displays this prompt once for each airport ICAO that has changes occurring within 24 hours.

To edit the chart clip for an airport in your route:

1. From the CHART CLIP screen, select **EDIT CLIP**.
2. In the CHART TYPES selector box, select the type of chart to include on the screen.
3. Check or uncheck the appropriate check boxes to add or remove charts from the clip.
4. Select **COMPLETE**.

Terminal Charts adds the selected charts to the clip and displays the CHART CLIP screen.

Working with Chart Utilities

From the CHART CLIP screen, select **CHART UTILITIES** to access the CHART UTILITIES screen.

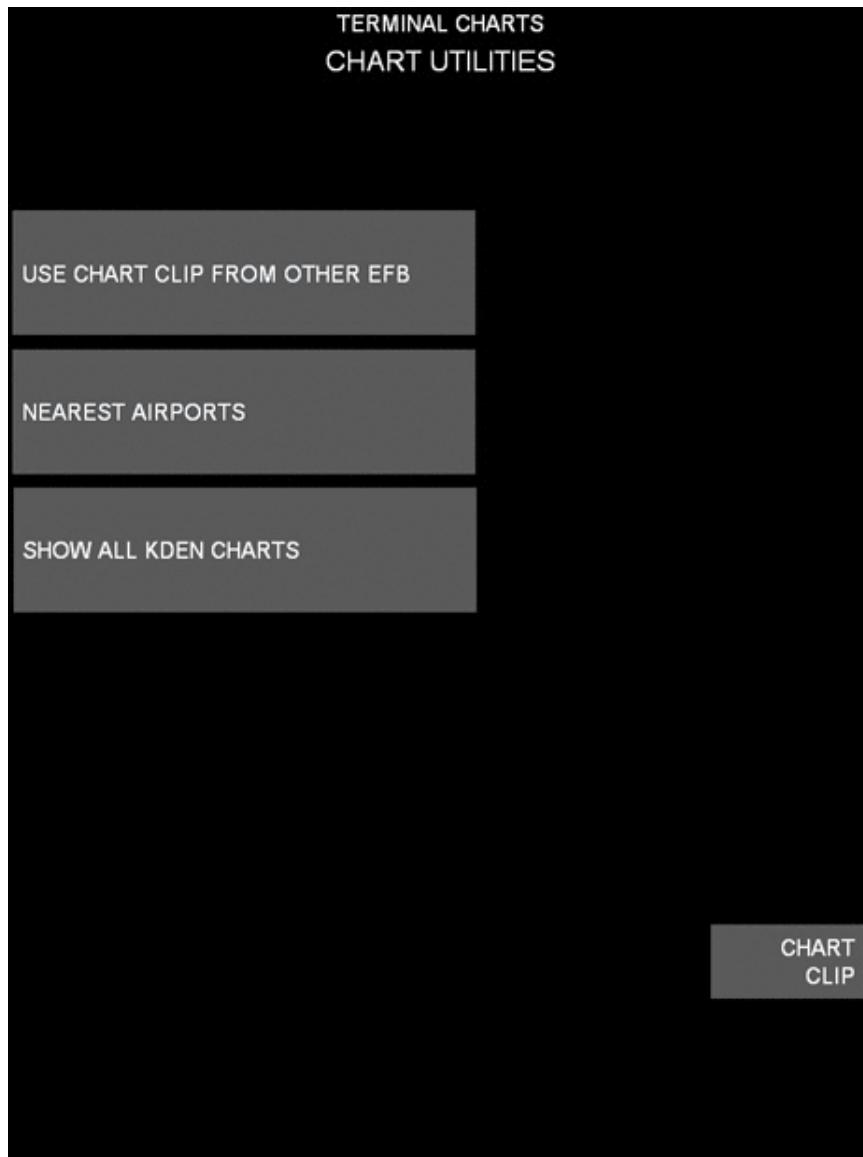


CHART UTILITIES screen

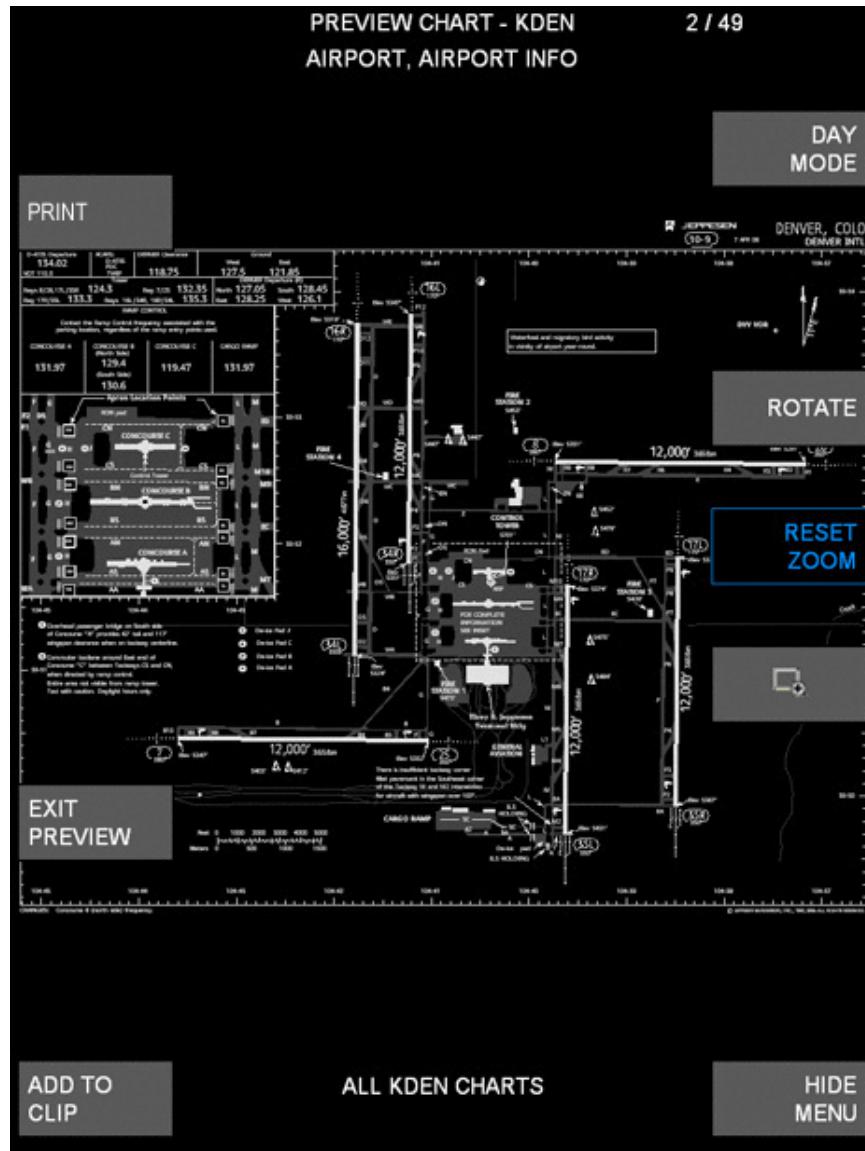
Select one of the menu options to perform the following tasks:

- Select **USE CHART CLIP FROM OTHER EFB** to import a chart clip from the offside EFB. For more information, see the “Importing a Chart Clip from an Offside EFB Device” section.
- Select **NEAREST AIRPORTS** to locate nearby airports. For more information, see the “Locating the Nearest Airports to Your Current Location” section.
- Select **SHOW ALL [airport] CHARTS** to view all charts for the selected airport. For more information, see the “Viewing All Charts” section.
- Select **CHART CLIP** to return to the current airport’s chart clip.

Previewing Charts

The preview feature opens a preview of a chart so you can review it before adding it to the airport chart clip. Do not use the preview chart for navigation; instead, use the full version, which supports all viewing functionality.

From the EDIT CHART CLIP screen, select the Preview button of the chart to view. Terminal Charts displays a preview screen.



Previewing a chart

The PREVIEW CHART screen displays the following menu options:

- Chart-manipulation buttons—The manipulation features on the PREVIEW CHART screen are limited to DAY MODE/NIGHT MODE, ROTATE, RESET ZOOM, REGIONAL ZOOM, pan, and scroll (if text). For more information about manipulating charts, see the “Manipulating Charts” section. Manipulations do not persist after you close the preview.
- ADD TO/REMOVE FROM CLIP buttons—if the chart you are previewing is not included in the current chart clip, Terminal Charts displays the ADD TO CLIP button. If the chart you are previewing is included in the current chart clip, Terminal Charts displays the REMOVE FROM CLIP button.
- EXIT PREVIEW button—Select this button to return to the EDIT CHART CLIP screen.
- PRINT button—if printing is enabled, the PRINT button appears. For information about printing, see the “Printing Charts” section.

Viewing Charts

Use the chart viewer to view and manipulate charts in the active airport's chart clip. To view a chart, you must first set up your flight.

Terminal Charts supports the following chart types:

- Airport
- Departure
- Arrival
- Approach
- Chart Change Notices and text (such as airport information)
- Customer-specific content created with the EFB Content Packager

You can view a chart from the CHART CLIP screen, the EDIT CHART CLIP screen, the SHOW ALL CHARTS screen, and the PREVIEW CHART screen. Terminal Charts can display both images and text-only information.

To view a chart, simply select it.

When chart effectiveness applies, Terminal Charts displays the charts according to their effectiveness based on the date range you selected when you added the airport to your route.

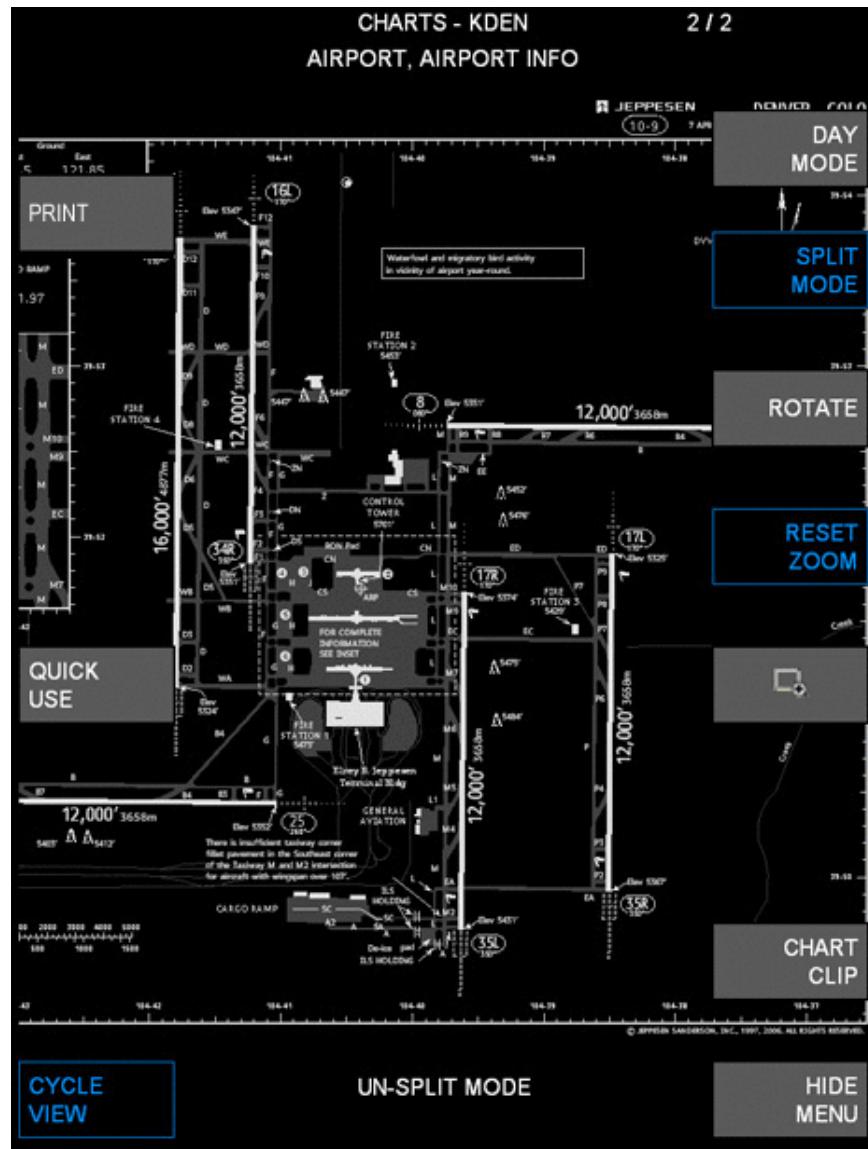


Chart with Terminal Charts chart menu options

If Terminal Charts is unable to display a chart because it cannot render the chart, retrieve the chart, or apply the chart display settings (which include display configuration, color palette, and layout rules), it displays a notification. See the “Troubleshooting” section for more information.

Chart Type Symbols

The following table describes the Terminal Charts chart symbols.

Chart Type Symbols

Symbol	Description
	Airport charts

Symbol	Description
	Departure charts
	Arrival charts
	Approach charts
	Chart Change Notices and other text screens (such as airport information)
	Temporary charts
Company identifier	Your organization's unique identifier appears in text format on any charts your organization created and packaged using the EFB Content Packager

Some charts might display an indicator during view or preview operations. For example, temporary charts are outlined in yellow and display the temporary icon in the left corner of the screen.

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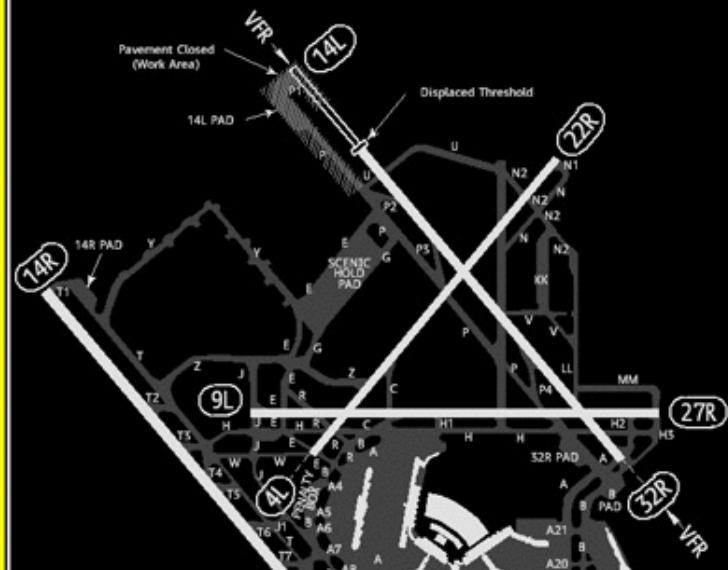
JEPPESEN
16 JUN 06 (20-8)

CHICAGO, ILL
-O'HARE INTL

CONSTRUCTION AT O'HARE INTL AIRPORT FOR MAY-JUNE-JULY 2006

AIRFIELD CONSTRUCTION ACTIVITY WILL AFFECT OPERATIONS ON THE FOLLOWING RWYS

Rwy NAVAID Impacts & Approach Information by Date:	Rwy	Planned Start	Planned End	NAVAID Impacts/Approach Comments
	14L			ILS shutdowns, VFR conditions and declared
	52R	May 1, 2006	Sep 28, 2006	distances in effect on both runways - See Reverse Side
	27L	Jun 15, 2006	July 15, 2006	ALS shutdown - ILS approach reduced from CAT II/III to CAT I.
	4R			
	22L	Jun 15, 2006	Nov 30, 2006	TDZL and centerline lights shutdowns on both runways.



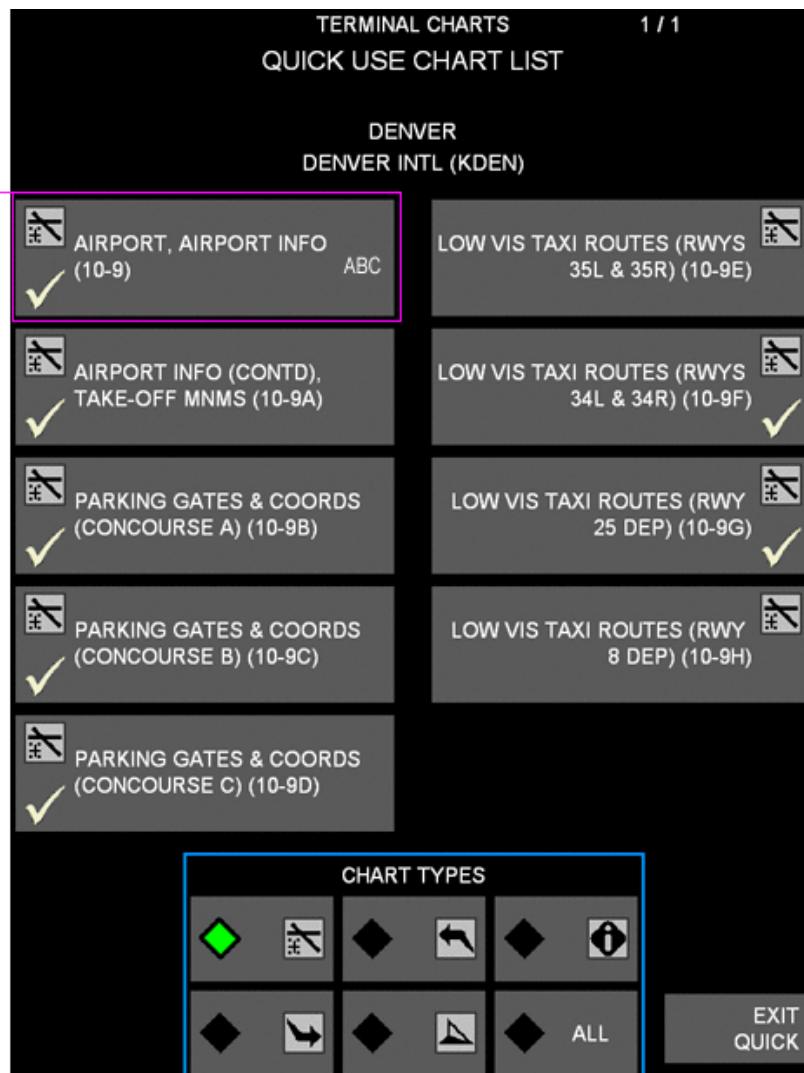
CYCLE
VIEW

UN-SPLIT MODE

SHOW
MENU

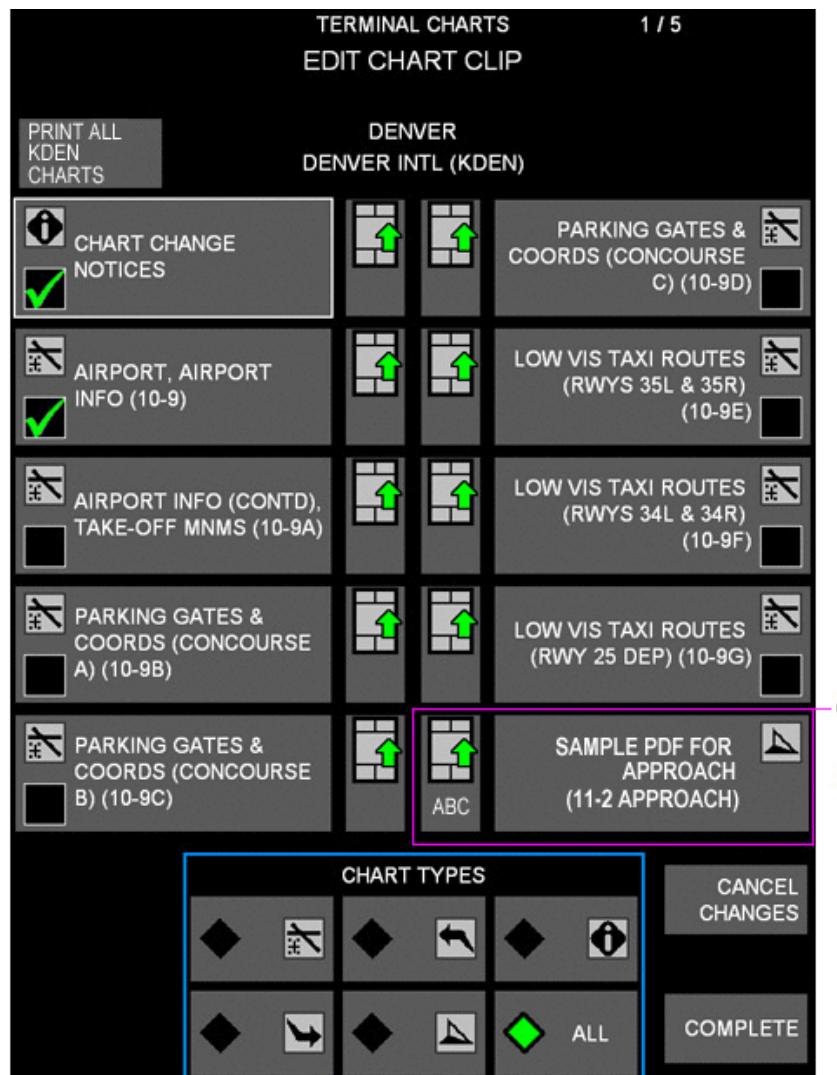
Temporary chart with indicator

If your organization creates and packages its own charts, the application identifies those charts in the CHART CLIP, SHOW ALL CHARTS, QUICK USE LIST, and EDIT CHART CLIP screens. On the CHART CLIP, SHOW ALL CHARTS, and QUICK USE CHART LIST screens, the application displays the company identifier on the chart button.



Customer chart with indicator on chart button

On the EDIT CHART CLIP screen, the application displays the company identifier on the Preview button.



Customer chart with indicator on Preview button

Viewing Charts for an Airport That is Not in the Route

You can view any chart in your Terminal Charts database regardless of whether the airport is included in your current route. To view a chart for an airport that is not defined in your route, use the AIRPORT SEARCH screen to locate the airport and then select the appropriate chart. To add the airport to the route, select **SET AS ALTERNATE**.

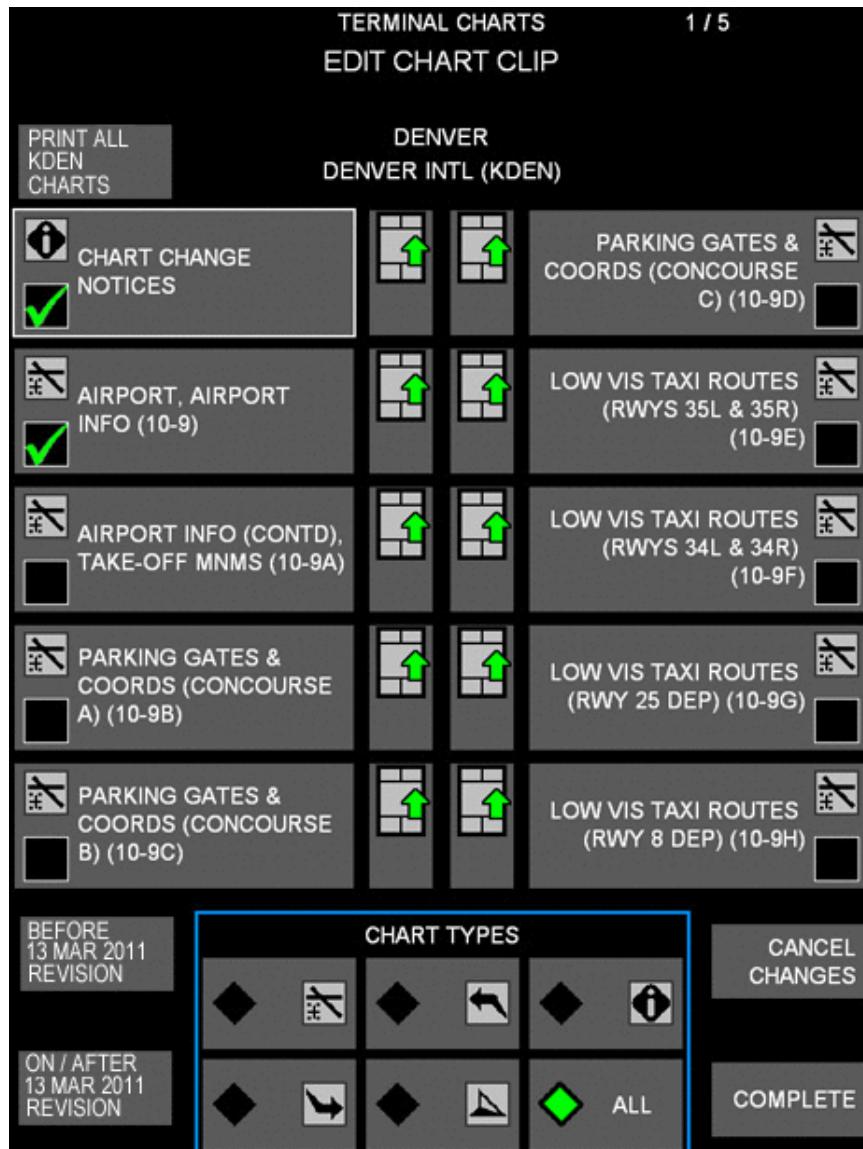
Viewing All Charts

You can view all of the charts that are associated with a selected airport even if the chart has not been included in the chart clip and regardless of effectivity date.

When chart effectivity applies, you cannot add a chart with a different effectivity date to the chart clip.

To view all charts:

- From the CHART CLIP screen, select **CHART UTILITIES** and then select **SHOW ALL [airport] CHARTS**, or
- From the CHART CLIP screen, select **ALL** in the CHART TYPES selector box.



Selecting to view all charts from the EDIT CHART CLIP screen

Select a chart to view it.

To add a chart to the chart clip, you must view all charts from the EDIT CHART CLIP screen.

Manipulating Charts

Depending on the chart type you are viewing, you can perform various manipulations.

- Select the **ZOOM IN** and **ZOOM OUT** bezel buttons to increase or decrease the display of the content in the chart.
- Select **SHOW MENU > REGIONAL ZOOM** (indicated by an icon) to zoom in on a rectangular area of the content in the VIEW CONTENT screen.
- Select **SHOW MENU > ROTATE** to rotate the chart display 90 degrees to the left or right while maintaining the same view factors. Select **ROTATE** again to restore the chart to its original position. This button is unavailable when the chart is being viewed in split mode.

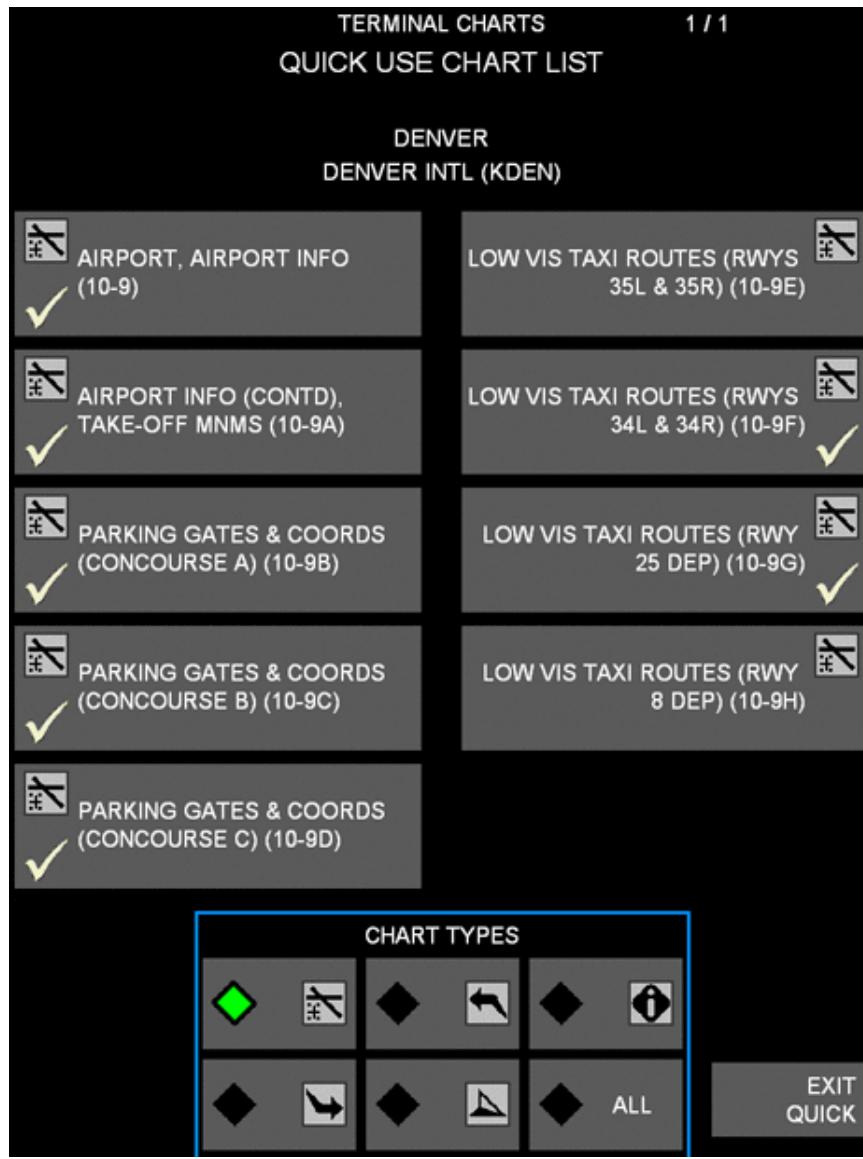
- Select **SHOW MENU > RESET ZOOM** to return zoomed charts to their original size and orientation.
- When the chart is zoomed in, use the bezel buttons or a finger to pan across the chart horizontally and vertically, positioning it so that the necessary information displays. You can pan until you reach the edge of the chart.
- If you are viewing text-only information, use the scroll bars to scroll the content up or down.
- Select **SHOW MENU > DAY MODE** or **SHOW MENU > NIGHT MODE** to toggle between day mode and night mode viewing. Day mode is suitable for bright light conditions, and night mode is suitable for dark conditions. Both modes must be available for you to toggle between them. Your organization might not create its charts in both modes. Typically, a chart with only one mode appears in night mode.
- Select **SHOW MENU > SPLIT MODE** to view an approach chart in split mode. In split mode, Terminal Charts breaks up the view of the chart so that the plan view appears at the top of the screen and the chart heading, profile view, and chart minimums sections appear at the bottom of the screen. Select **SHOW MENU > UN-SPLIT MODE** to view the chart as a single chart again. Your organization sets the default mode, and it determines whether split mode is available. Split mode is not available from the PREVIEW CHART screen, and the ROTATE button is not available in split mode.
- Select **CYCLE VIEW** to cycle a split approach chart through its chart heading, profile view, and chart minimums frames. After all three frames appear individually with the plan view, they appear together without the chart.

Using the “Quick Use” Feature

Use the “Quick Use” feature to quickly preview and add charts of the same chart type to your chart clip. This function is not available for chart change notices.

To quickly view and add a chart to the chart clip:

1. From the CHARTS screen, select **SHOW MENU > QUICK USE**. The QUICK USE CHART LIST screen displays a list of charts for the current airport that are of the same chart type as the chart you were viewing.



QUICK USE CHART LIST screen

Terminal Charts indicates the charts that are already included in the chart clip and identifies charts as customer-created, temporary, or color charts.

2. Select the chart to add to the to the chart clip.

Select the **EXIT QUICK** button to return to the chart you were viewing before you selected the **QUICK USE** button.

Locating the Nearest Airports to Your Current Location

You can search the database for the closest airports that meet specific criteria your organization configured for your EFB (minimum runway length, whether precision approach is required, and whether jet fuel is available). The application displays the current criteria at the bottom of the screen. If necessary, you can disable this criteria and view all of the closest airports.

To locate the nearest airports, the airplane must be en route.

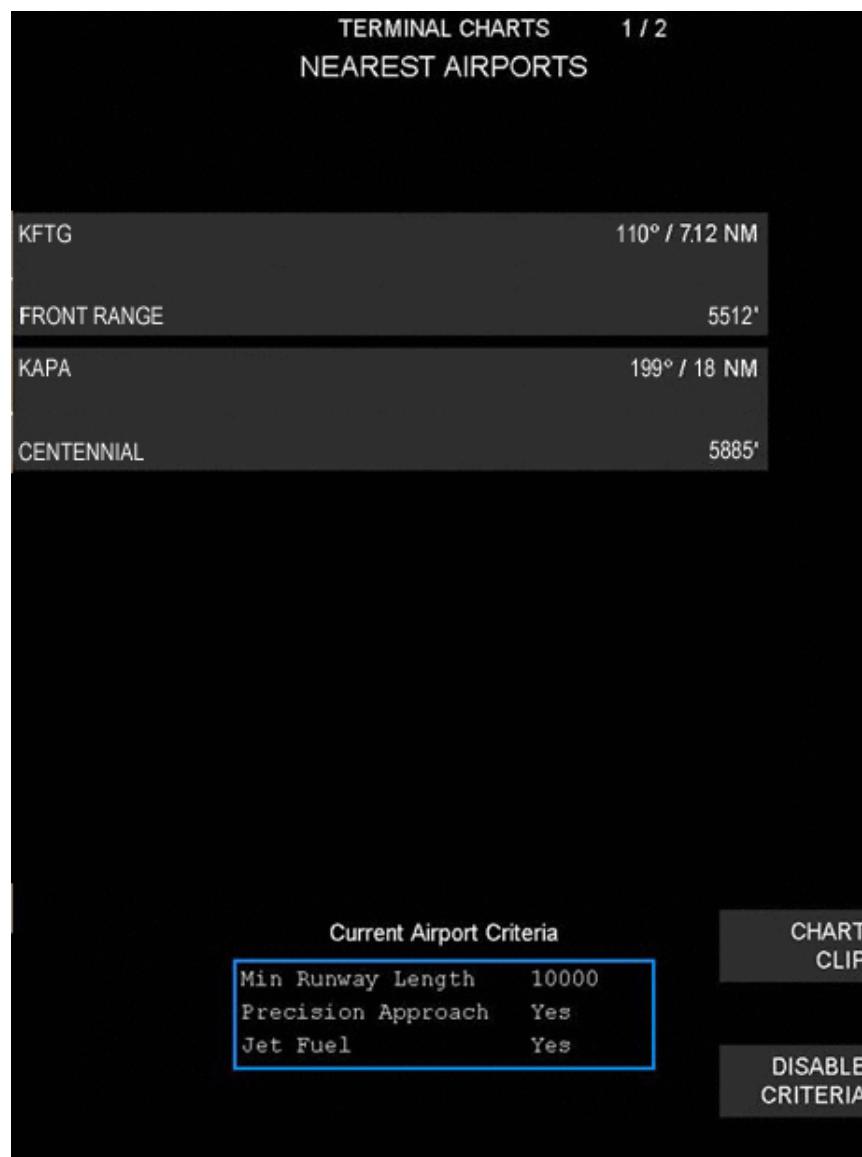
When searching for the nearest airports, the Terminal Charts application uses the current GPS position to provide a list of the 10 nearest airports that meet the search criteria (if enabled). Direction and distance from the current position are also provided. If fewer than 10 airports meet all the criteria, only those airports are listed. If more than 10 airports meet the criteria, the closest 10 are displayed and available for selection.

NOTE: Only airports for which charts are available in your company's subscription display in the Nearest Airports list.

To search for the nearest airports:

1. From the CHART CLIP screen, select **CHART UTILITIES**.
2. Select **NEAREST AIRPORTS**.

The application screen retrieves up to 10 of the closest airports to your position. Up to five airports display at a time. Select the **PGDN** bezel button to view additional airports on the next screen.



NEAREST AIRPORTS screen

NOTE: The application sorts airports based on their distance from the aircraft, listing the closest airport first. The application does not refresh the list.

3. Select an airport to view a list of charts that are associated with it.

If chart effectiveness applies, the application prompts you to select the appropriate date range (**BEFORE EFFECTIVE DATE** and **ON/AFTER EFFECTIVE DATE**). Terminal Charts displays the list of charts for the date range you selected.

4. Select the **SET AS ALTERNATE** button add the airport to the chart clip as an alternate.

The application displays the ROUTE SETUP screen with the selected airport in first available ALT airport position.

NOTE: If all of the alternate airports are defined, the Terminal Charts application displays an error to notify you that all alternates are full. You must manually enter the selected airport into one of the alternate fields.

To view all of the closest airports regardless of your organization's criteria, select **DISABLE CRITERIA**.

To return to the chart clip without selecting an airport, select **CHART CLIP**.

Importing Chart Clips from an Offside EFB Device

Networked EFB devices use “offside communication” to share information. From your perspective, the “onside” EFB device is your device; the “offside” EFB device is any other EFB device in the cockpit. When offside communication is enabled, you can transfer chart clips between EFB devices. When the onside EFB device is able to communicate with the offside EFB device, the Terminal Charts application enables the **USE CHART CLIP FROM OTHER EFB** button. You and the other pilot must be running the same version of Terminal Charts, and you must select databases with the same effectiveness dates to enable offside communication. If you select databases with different effectiveness dates, the Terminal Charts application displays a notification.

To import a chart clip from another EFB:

1. Select **CHART UTILITIES** from the Chart Clip screen.
2. Select **USE CHART CLIP FROM OTHER EFB**.
3. Select **YES** to confirm the transfer of the clip to your EFB.

If chart effectiveness applied to the offside chart clip, the date range selection (**BEFORE EFFECTIVE DATE** and **ON/AFTER EFFECTIVE DATE**) for each ICAO in the offside chart clip is transferred with the chart clip to the onside Terminal Charts application.

NOTE: The new chart clip overwrites all previous chart clip selections on your EFB. The application does allow a blank selection (empty chart clip) to replace an existing clip. Pilot-defined viewing options applied to the charts in the clip (map rotation, panning, and zooming) do not transfer.

The application displays the ROUTE SETUP screen.

Printing Charts

You might be able to print Terminal Charts, including content your organization created and packaged using the EFB Content Packager. For you to print on a Class 1 or Class 2 EFB, the default printer must be defined. For you to print on a Class 3 EFB, the application must establish connectivity with the printer. For all classes, your organization must enable the print function in the Terminal Charts configuration file.

If a printer is installed and configured to work with Terminal Charts, the application enables you to print the current chart, print all charts in the current clip, or print all charts for an airport. The printed headers include information about chart effectiveness, a “TEMP” indicator if the chart is a temporary chart, and the name of the chart color if the chart is a color chart. Additional header information includes validity notice, print date and time, licensee information, the Jeppesen name (for Jeppesen charts), the application version number, the database part effectiveness information, and the database part number (if it is available from the system. If the chart is no longer effective, the header contains the following notification: “EXPIRED Chart - Superseded as of [revision date]”. If the chart is not yet effective, the header contains the following notification: “FUTURE Chart - Supersedes as of [revision date]”.

Terminal Charts does not print split mode versions of charts, nor does it print any manipulations you have applied to the chart. The application prints chart change notices and airport information in portrait orientation.

To print:

- Select **SHOW MENU > PRINT** on the CHART and PREVIEW CHART screens to print the chart you are viewing.
- Select **PRINT CLIP** on the CHART CLIP screen to print the charts in the clip.
- Select **PRINT ALL CHARTS** on the EDIT CHART CLIP screen to print all of the charts for an airport. Because there may be many charts associated with an airport, you must select **YES** when the system requests confirmation that you want to print all of the charts.

The Terminal Charts application performs EFB class-specific steps to complete the print operation.

Although you can print multiple charts, you can print only one print job at a time. The print buttons are unavailable until a job completes.

On the Class 3 EFB, Terminal Charts reports the success or failure of the print job.

Troubleshooting

Terminal Charts might display the following fault notifications:

- **CHARTS: CHART IS UNAVAILABLE**—Indicates that certain charts in database are invalid or corrupt. Under specific conditions, the application reports this fault if specific fields in the charts.dbf database are blank (for example, Trim Size). The EFB displays this fault on the SYSTEM screen and the Maintenance FAULT LOG screen, and the application shuts down.
- **CHARTS: COVERAGE CODE MISMATCH**—Indicates that the coverage code listed in the Customer configuration file does not match the coverage code of the loaded Terminal Charts database. The EFB displays this fault on the SYSTEM screen and the Maintenance FAULT LOG screen, and the application shuts down.
- **CHARTS: <SPN> FAILURE CRC**—Indicates that the Terminal Charts configuration files or database parts failed a validation (CRC) check. The short part number (SPN) identifies the part. The EFB displays this fault on the SYSTEM screen and the Maintenance FAULT LOG screen, and the application

shuts down.

- CHARTS: <SPN> MISSING—Indicates that the Terminal Charts configuration files or database parts are missing. The short part number (SPN) identifies the part. The EFB displays this fault on the SYSTEM screen and the Maintenance FAULT LOG screen, and the application shuts down.
- CHARTS: <SPN> INVALID—Indicates that the Terminal Charts configuration files or database parts have been modified outside the appropriate tools. The short part number (SPN) identifies the part. The EFB displays this fault on the SYSTEM screen and the Maintenance FAULT LOG screen, and the application shuts down.



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ONBOARD PERFORMANCE TOOL

Overview

Use the Onboard Performance Tool (OPT) application to perform real-time calculations based on various performance factors while adhering to company and regulatory policies and procedures. Performance factors include airport and aircraft data, which your organization manages and loads onto the EFB pre-flight, and information about current conditions. Depending on the current conditions that you define, OPT can correct performance calculations for pressure variation, runway conditions, engine bleeds, minimum equipment list (MEL) items, configuration deviation list (CDL) items, and other factors that your organization requires.

Each organization activates or deactivates certain performance functions. For example, your organization might enable calculation functions for takeoff, landing, and weight and balance. In addition, your organization sets its preferences (such as pounds or kilograms, flap configuration, and brake settings) according to organization policy and fleet-management requirements.

The OPT application runs on Class 1, 2, and 3 EFB devices and can even run standalone. If the application is running standalone, the EFB does not manage application initialization and shutdown.

Pilots use OPT to perform the following tasks:

- Perform basic calculations, including searching for an airport if the application is unable to retrieve one from the FMS, calculating takeoff and landing performance, and performing weight-and-balance calculations
- Perform advanced takeoff, landing, and weight-and-balance calculations, including adding and removing temporary airports, reviewing airport data, entering corrections to NOTAMs, and applying MEL or CDL performance penalties
- Print calculation information
- Switch to the EDB application

Using the OPT Application

The OPT application exhibits the following standard EFB behavior:

- To launch the application, select the application button on the MAIN MENU screen. Your organization defines the text of the button label.
- To exit the application, select the **MENU** bezel button to return to the MAIN MENU screen.
- To view application faults, open the SYSTEM FAULT LOG screen. The EFB logs faults regarding application failure, but the application does not report additional faults to the fault log. For more information, see the “Troubleshooting” section.

NOTE: Unlike some other EFB applications, the OPT application does not display MEMO or MSG notifications to indicate the existence of system messages; instead, the application displays error messages during data-entry functions, enabling you to complete or revise the data.

Understanding Performance Data

OPT acquires data from three sources:

- The onboard flight computer (FMS or FMC)

- Databases that your organization manages and loads onto the EFB pre-flight
- Data you enter onboard the aircraft pre-flight.

Acquiring FMS-Reported Data

Upon flight initialization, the OPT application retrieves some or all of the following information from the FMS if one is available:

- Origin airport
- Destination airport
- Outside air temperature (OAT)
- Altimeter setting
- Departure runway
- Gross weight

If the application is unable to retrieve this information, you can enter it.

Working with Organization-Managed Data

Your organization might configure and maintain the following data, which it loads onto the EFB pre-flight:

- Specific airport data, including information about airport elevation, runways, takeoff intersections, and obstacles
- Specific airplane configuration and performance data, including information about aircraft and fuel weights, tail number, engine type and rating, flap configurations, maximum loading capacity, and center-of-gravity envelope
- Weight-and-balance data
- Notice to airmen (NOTAM) data that might affect performance, including information about temporary runway construction, modifications, or obstacles at specific airports
- Required settings and corrections for applying performance penalties resulting from selected MEL and CDL items
- Company policies, including information about V₁ basis, use of lineup allowances, and contaminated runway selections

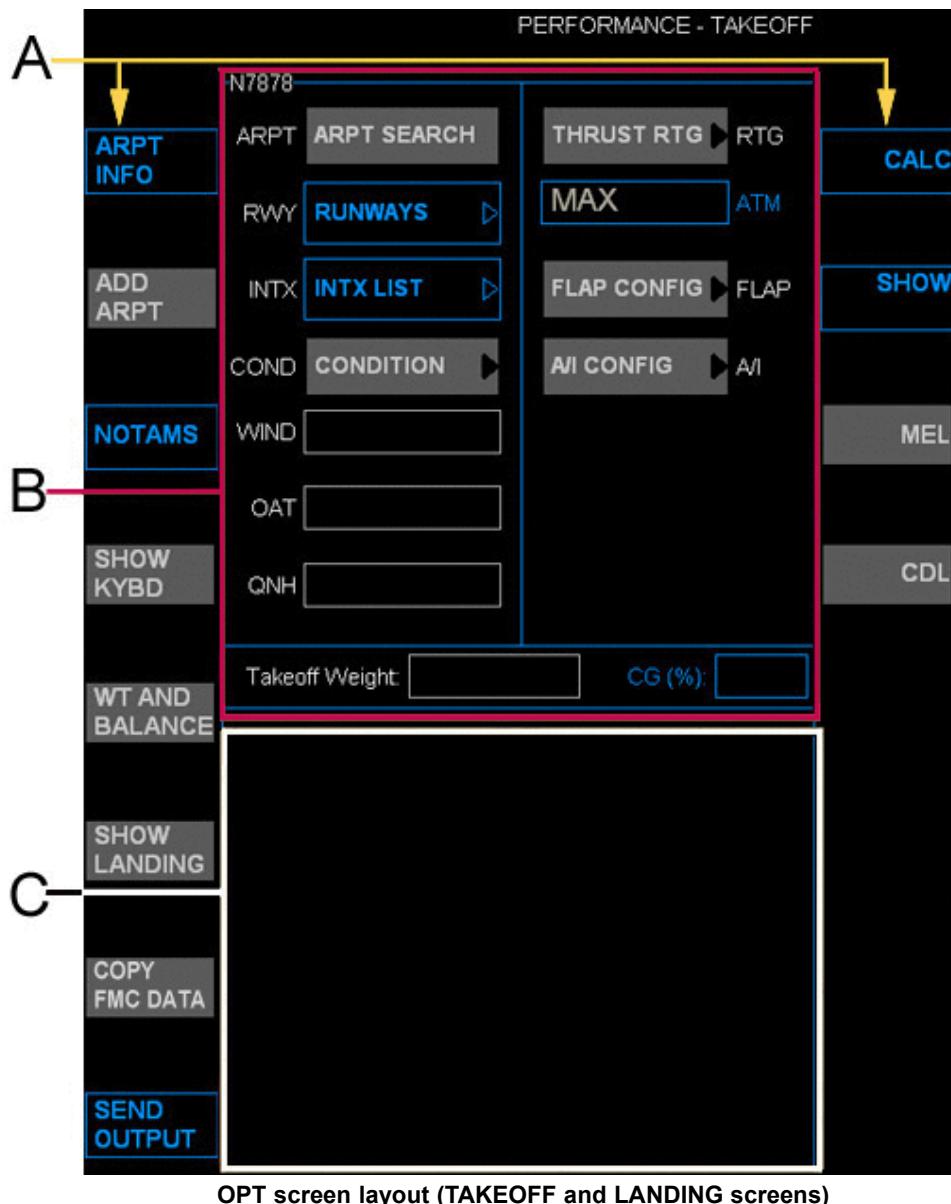
Entering Data

For each flight, you can define the following information:

- Origin and destination airport if the application was unable to retrieve this information from the FMS.
- Takeoff and landing runway.
- Takeoff intersection.
- Runway condition.
- Current environmental conditions, such as outside air temperature, altimeter setting, and wind velocity or component. Your organization defines the maximum allowable crosswind for each runway condition.
- Aircraft takeoff and landing weight.
- Specific aircraft configuration, such as brake settings, flap position, air conditioning status, anti-ice status, and non-normal landing configuration. Your organization defines the available options.
- Weight values for passengers, cargo, fuel, and other items (such as equipment) onboard the airplane.

Features of OPT

The contents of the OPT screens (such as button labels, performance options, and application colors) are highly configurable, but the application layout is similar from organization to organization. The information in this section is representative of application screens.



The following table describes the OPT user interface elements on the TAKEOFF and LANDING screens:

OPT User Interface Elements (TAKEOFF and LANDING screens)

Callout	Description
A	Application menu options
B	Application input area
C	Calculation results area

Using the OPT Menu Options

Depending on the screen you are viewing and your organization's settings, OPT can display the following menu options on the TAKEOFF and LANDING screens:

TAKEOFF and LANDING Menu Options

Menu Option	Description
ARPT INFO	Displays the AIRPORT DATA screen, which contains read-only information about the selected airport's elevation, the selected runway, and any obstacle information.
ADD ARPT	Displays the ADD AIRPORT screen, where you can add an airport that is not in your organization's airport database. The application discards this temporary airport upon application shutdown (if standalone) or EFB shutdown.
NOTAMS	Displays the NOTAMS screen, where you can add information about an obstacle or runway shortening that is not contained in the NOTAMs that have already been loaded into the airplane database.
SHOW KYBD/ HIDE KYBD	Displays or hides the virtual keyboard.
WT AND BALANCE	Displays the WT AND BAL (weight and balance) screen, where you can enter weight information for passengers, cargo, fuel, and other equipment.
SHOW TAKEOFF/SHOW LANDING	Displays the TAKEOFF or LANDING screen. When you are viewing the TAKEOFF screen, the application displays the SHOW LANDING button. Select it to view the LANDING screens. The button toggles to SHOW TAKEOFF when you access the LANDING screens. Select it to view the TAKEOFF screen.
COPY FMC DATA	Imports data from the FMS or FMC into the OPT application.
SEND OUTPUT	Displays an OUTPUT screen, where you can choose to store or print aircraft information, takeoff and landing calculations, and MEL, CDL, and NOTAM content. This button becomes active after OPT performs a calculation.
CALC	Initiates performance calculations. This button becomes active only after you enter all applicable data.
SHOW FULL/SHOW ATM	Toggles between two takeoff calculations: the actual temperature (SHOW FULL) and the assumed temperature method (ATM). When you input a takeoff weight, OPT enables the inputs for the ATM results and the full-thrust results (FULL). The application displays the ATM results first. Select the SHOW FULL button to view the full-thrust results. Select SHOW ATM to view the ATM results again.

Menu Option	Description
MEL	<p>Displays the MEL screen, where you can identify and select items from your organization's MEL that affect performance.</p> <p>Your organization might configure the EFB so that you can access the EFB Document Browser (EDB) application directly from this screen without returning to the MAIN MENU screen. If this feature is enabled, select the question mark icon next to the appropriate content to view it in the EDB.</p> <p>To return to the OPT application, select the RETURN button.</p>
CDL	<p>Displays the CDL screen, where you can identify and select items from your organization's CDL that affect performance.</p> <p>Your organization might configure the EFB so that you can access the EFB Document Browser (EDB) application directly from this screen without returning to the MAIN MENU screen. If this feature is enabled, select the question mark icon next to the appropriate content to view it in the EDB.</p> <p>To return to the OPT application, select the RETURN button.</p>

For more information about the menu options on the WT AND BAL (Weight and Balance) screen, see “Calculating Weight and Balance” in the “Calculating Basic Performance” section. Because OPT is highly configurable, you might not have access to the WT AND BAL screen.

Working with Application Preferences

Your organization defines the following application preferences for performance calculations and data presentation:

- Weight in kilograms (KG) or pounds (LBs)
- Horizontal distance in meters (M) or feet (FT)
- Vertical measurements in M or FT
- Runway length input as takeoff run available (TORA), takeoff distance available (TODA), and accelerate-stop distance available (ASDA) or field length (FL), clearway (CW), and stopway (SW)
- Obstacle distance in reference to runway start or liftoff end
- Obstacle height in reference to runway start or liftoff end
- Fuel tank volume in liters (L) or US gallons (Gal)
- Wind speed in meters per second (M/S) or knots (KTs)
- Pressure altitude type as QNH or QFE
- OAT in Celsius (C) or Fahrenheit (F)

Performing Basic Computations

Basic computations include basic takeoff, landing, and weight-and-balance calculations. The types of calculations you can perform depend on how your organization configures your OPT application.

OPT can perform the following types of takeoff calculations:

- Maximum weight (or if the selected weight is allowed)
 - V speeds
 - Optimum flap setting
 - Minimum flap-retract height
 - Selected or assumed temperature
-

NOTE: FMS-calculated takeoff speeds might differ from EFB-calculated takeoff speeds. FMS speeds apply only in certain conditions. See your Operations Manual for more information.

OPT can perform the following types of landing calculations:

- Dispatch-related, maximum landing weights
- Enroute-related, airline-factored landing distances for normal configurations
- Enroute-related, airline-factored landing distances for non-normal configurations

The OPT weight-and-balance function uses pilot-entered weight values to calculate the planned takeoff weight and center of gravity. It also uses these values to calculate the planned landing weight.

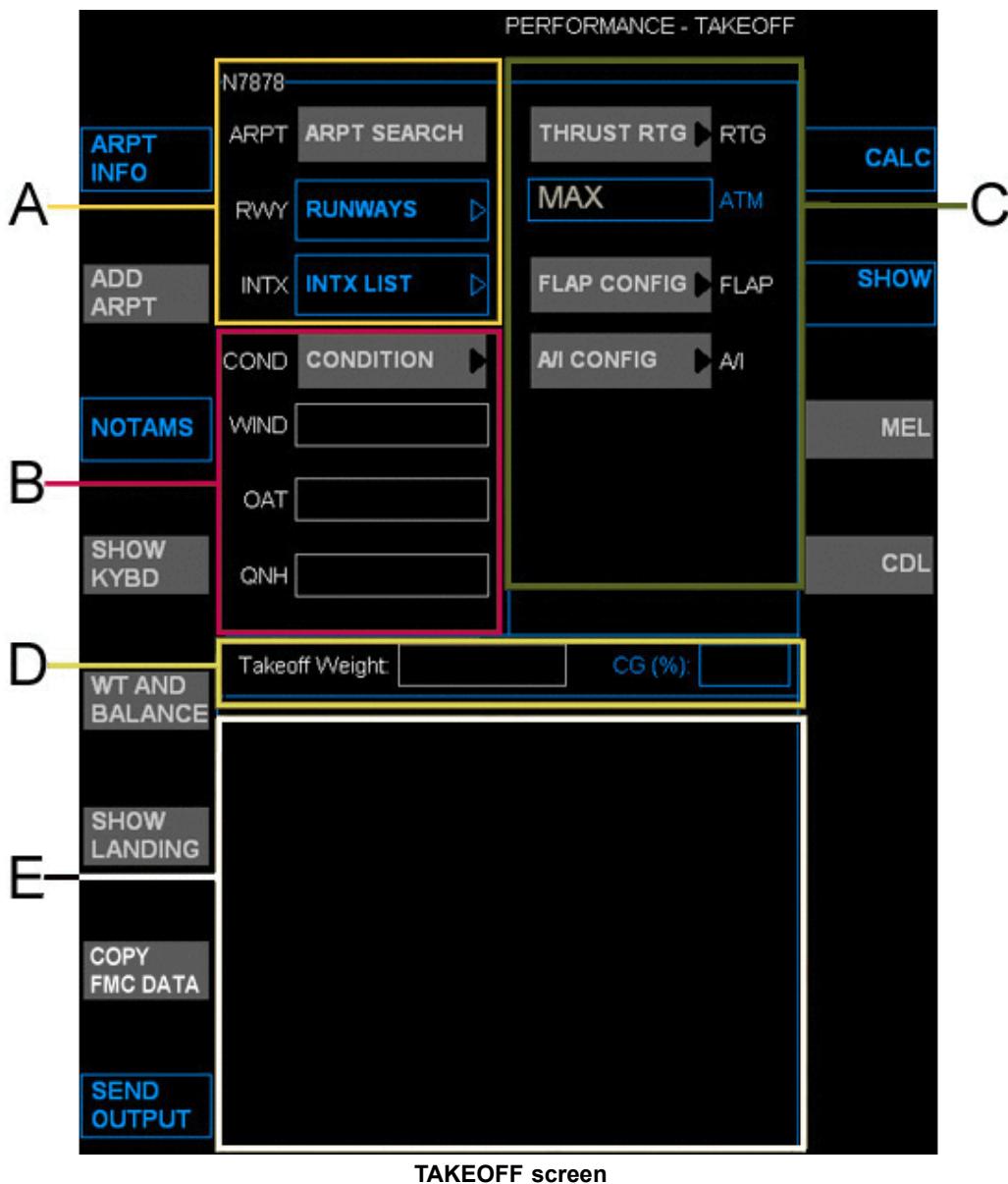
Accessing the Various Screens

When you first access the OPT application, it displays the TAKEOFF screen. If you previously accessed the OPT application, the application displays the last screen that you viewed before exiting.

- To access the TAKEOFF screen, select the **SHOW TAKEOFF** button.
- To access the LANDING screens (DISPATCH and ENROUTE), select the **SHOW LANDING** button and then select the **SHOW DISPATCH** or **SHOW ENROUTE** button.
- To access the WT AND BAL screen, select the **WT AND BALANCE** button.

Calculating Takeoff Performance

Use the TAKEOFF screen to define appropriate data for determining airplane takeoff performance. Your organization defines the types of takeoff performance data that the application displays.



NOTE: Your organization defines whether the OPT application can calculate takeoff performance from data entered on one or both EFB devices. Because inconsistent data between EFB devices can impact calculations, you should follow your organization's policies for addressing such issues. If the application calculates performance using data from only one EFB devices, you can use the **XFR** bezel button to transfer the resulting performance data to the other EFB.

The TAKEOFF screen contains the following features:

TAKEOFF Screen Elements

Callout	Description
A	Airport information
B	Current condition information

Callout	Description
C	Aircraft configuration information; the options in this section vary depending on your organization's preferences
D	Airplane takeoff weight and center of gravity (CG) position
E	Calculation results area

Your organization can include the following performance factor fields on the TAKEOFF screen:

Takeoff Performance Factor Fields

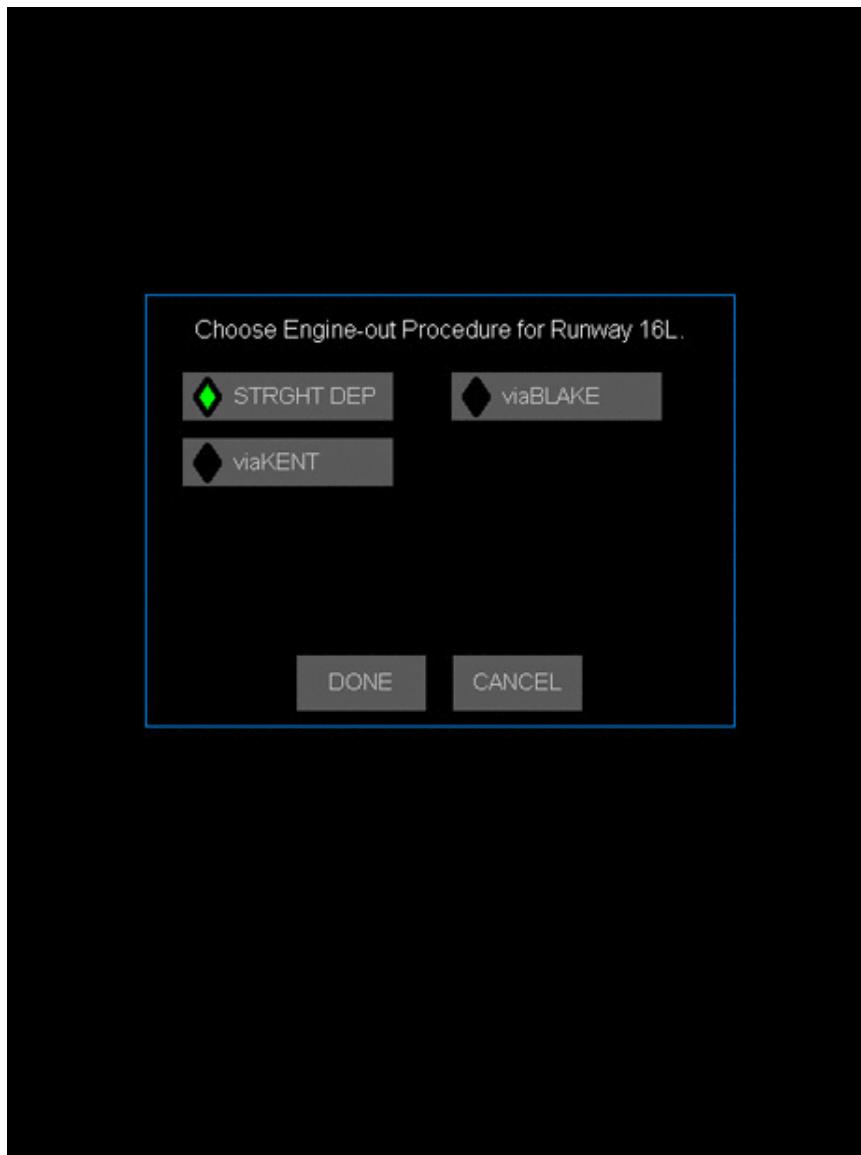
Field	Description
ARPT	Displays the ICAO or IATA identifier of the origin airport as reported by the FMS after flight initialization. If the application is unable to obtain this information from the FMS, selecting this button displays the airport search function.
RWY	<p>Displays the selected runway. If you have not yet chosen a runway, selecting this button displays a list of all runways at the selected airport.</p> <p>NOTE: If the OPT application has received a NOTAM identifying a particular runway as closed, the runway label appears in amber in this field. If you select a closed runway, the application displays a notification, but it still performs any calculations you request.</p>
INTX	<p>Displays the runway's selected intersection. If you have not yet chosen an intersection, selecting this button displays a list of all takeoff intersections for the selected runway. This field is required only if INTX data is associated with the runway in your organization's airport database. If no intersection takeoff is available for the selected runway, "NO INTX" appears in the field.</p> <p>If the runway is associated with three or fewer intersections, the application groups the intersections under the ALL menu item. Selecting ALL displays the intersection results on buttons on the right side of the screen.</p> <p>If the runway is associated with more than three intersections, the application groups the full-length runway and the first three intersections under the FIRST FOUR menu item. Selecting FIRST FOUR displays the results for the runway and first three intersections on buttons on the right side of the screen.</p>
COND	Displays the selected runway condition. If you have not yet chosen a runway condition, selecting this button displays a list of all available runway conditions.
WIND	<p>Displays the value of the wind direction and velocity at the origin airport. Enter this information in the following format:</p> <ul style="list-style-type: none"> • To designate wind direction and velocity, enter wind direction/velocity (for example, 240/15). • To designate a headwind component, enter a positive wind velocity (for example, 15). • To designate a tailwind component, enter a negative wind velocity (for example, -15) or include a leading or trailing "T" with the wind velocity (for example, T15 or 15T). <p>Your organization defines the units that the application uses to calculate performance.</p>

Field	Description
OAT	Displays the value of the outside air temperature (OAT) at the origin airport. Your organization defines the units that the application uses to calculate performance. To override the default setting, type "C" to indicate Celsius and type "F" to indicate Fahrenheit (for example, 5C or -5F).
QNH	Displays the value of the barometric pressure at the origin airport.
RTG	Displays the engine-thrust rating. If you have not yet chosen an engine-thrust rating, selecting this button displays a list of the airplane's available engine-thrust ratings.
ATM	Displays calculations based on the Assumed Temperature Method (ATM). To enable this button, you must enter an estimated takeoff weight. Enter "0" (zero) or "MAX" to indicate a maximum assumed temperature. Enter a negative number to indicate a decrement from the maximum assumed temperature. If you enter a value that exceeds the performance capability of the airplane, the application displays a notification. Enter a lower assumed temperature or "MAX" to correct the issue.
FLAPS	Displays the selected flap configuration. If you have not yet chosen a flap configuration, selecting this button displays a list of the airplane's available flap configurations.
AC	Displays the selected air conditioning bleed configuration. If you have not yet chosen an air conditioning bleed configuration, selecting this button displays a list of the airplane's available air conditioning bleed configurations.
A/I	Displays the selected anti-ice bleed configurations. If you have not yet chosen an anti-ice bleed configuration, selecting this button displays a list of the airplane's available anti-ice bleed configurations.
Takeoff weight	Displays the estimated takeoff weight. If you do not enter an estimated takeoff weight, the application determines the maximum allowable takeoff weight for the prevailing conditions. If you input a value, the application uses takeoff weight to calculate the reduced-thrust power setting for engine maintenance savings. If your organization includes the OPT weight-and-balance option, the application automatically displays an estimated takeoff weight in this field.
CG (%)	Displays the center of gravity (CG) percent. This field is optional. The application uses CG values to calculate stab trim. This option is not available for all airplanes. If your organization includes the OPT weight-and-balance option, the application automatically displays a CG percent in this field.

To calculate takeoff performance:

1. Access the TAKEOFF screen.
2. Select or enter the appropriate airport information.

If you select a runway that is associated with multiple engine-out (EO) procedures, the application displays the available procedures.



Selecting an EO procedure

Choose the appropriate procedure and select **DONE**.

The application displays the runway and EO procedures information on the TAKEOFF screen.

3. Enter the required information about current conditions.

Each field automatically displays the unit of measure.

4. Enter the applicable aircraft configuration information
5. If necessary, enter the estimated takeoff weight and CG (%) value.
6. Select **CALC**.

NOTE: If you entered an invalid figure, the application displays an error message when you select **CALC**. Select **OK** to correct the error.

In the calculation results area, the TAKEOFF screen displays the calculated performance figures for the aircraft under the defined conditions.



TAKEOFF screen with calculated performance figures

The TAKEOFF calculations can include the following information:

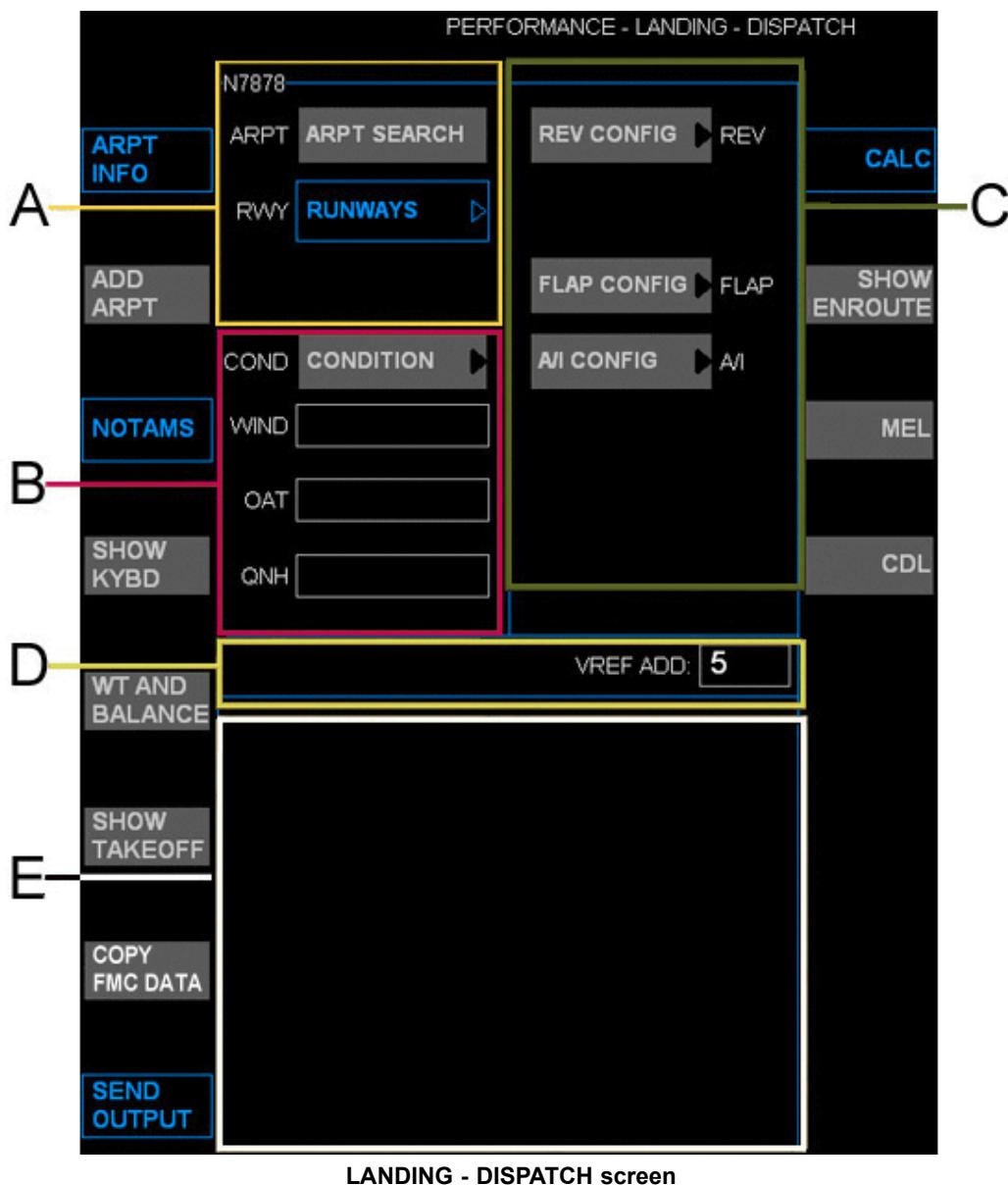
Takeoff Calculations

Field	Description
FLAP	Selected or calculated flap position.
ACCEL HT	Minimum flap retract height.
RWY/INTX	Takeoff runway and intersection.
TOGW	Actual weight (if takeoff weight is entered) or maximum takeoff weight (if takeoff weight is not entered).
TO	Takeoff power setting.
V speeds	Recommended V speeds.
Engine-out Procedure	Selected EO procedure.
Vref	Reference landing speed.

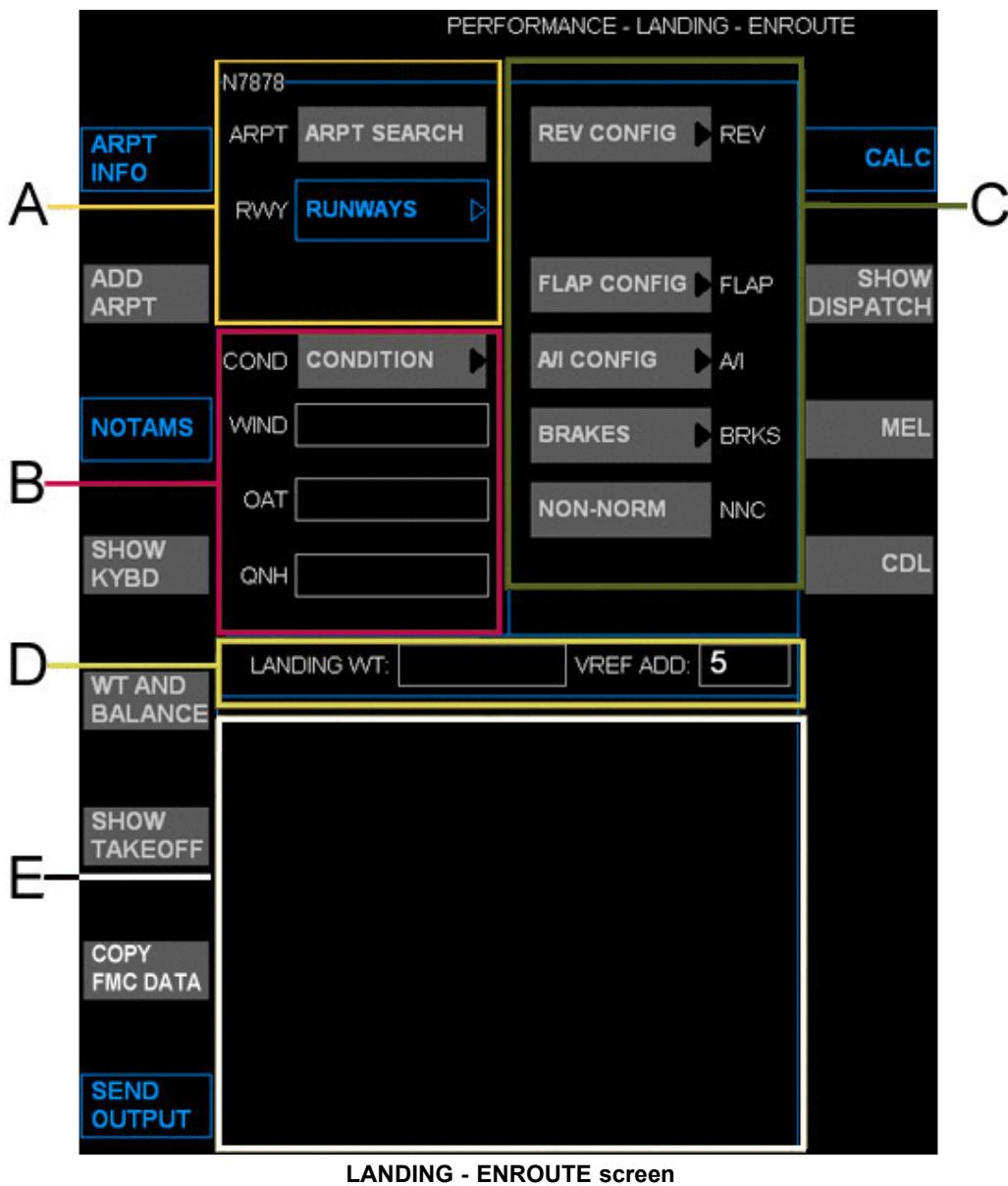
Calculating Landing Performance

Use the LANDING screens to define appropriate data for determining airplane landing performance. Your organization defines the types of landing performance data that the application displays.

Use the Landing - DISPATCH screen to determine landing performance at the destination airport before you depart the origin airport.



Use the Landing - ENROUTE screen to make adjustments to landing calculations while enroute.



The LANDING screens contain the following features:

LANDING Screen Elements

Callout	Description
A	Airport information
B	Current condition information
C	Aircraft configuration information
D	Airplane landing weight (ENROUTE) and approach speed increment information
E	Calculation results area

Your organization can include the following performance factor fields on the LANDING screens:

Landing Performance Factor Fields

Field	Description
ARPT	Displays the ICAO or IATA identifier of the destination airport as reported by the FMS after flight initialization. If the application is unable to obtain this information from the FMS, selecting this button displays the airport search function.
RWY	Displays the selected runway. If you have not yet chosen a runway, selecting this button displays a list of all runways at the selected airport. NOTE: If the OPT application has received a NOTAM identifying a particular runway as closed, the runway label appears in amber in this field. If you select a closed runway, the application displays a notification, but it still performs any calculations you request.
COND	Displays the selected runway condition. If you have not yet chosen a runway condition, selecting this button displays a list of all available runway conditions.
WIND	Displays the value of the wind direction and velocity at the destination airport. Enter this information in the following format: <ul style="list-style-type: none"> • To designate wind direction and velocity, enter wind direction/velocity (for example, 240/15). • To designate a headwind component, enter a positive wind velocity (for example, 15). • To designate a tailwind component, enter a negative wind velocity (for example, -15) or include a leading or trailing "T" with the wind velocity (for example, T15 or 15T). Your organization defines the units that the application uses to calculate performance.
OAT	Displays the value of the outside air temperature (OAT) at the destination airport. Your organization defines the units that the application uses to calculate performance. To override the default setting, type "C" to indicate Celsius and type "F" to indicate Fahrenheit (for example, 5C or -5F).
QNH	Displays the value of the barometric pressure at the destination airport.
REV	Displays the selected reverser configuration. If you have not yet chosen a reverser configuration, selecting this button displays a list of the airplane's available reverser configurations.
FLAP	Displays the selected flap configuration. If you have not yet chosen a flap configuration, selecting this button displays a list of the airplane's available flap configurations.
A/I	Displays the selected anti-ice bleed configurations. If you have not yet chosen an anti-ice bleed configuration, selecting this button displays a list of the airplane's available anti-ice bleed configurations.
BRKS (ENROUTE screen)	Displays the selected brake setting. If you have not yet chosen a brake setting, selecting this button displays a list of the airplane's available brake settings.
NNC (ENROUTE screen)	Displays the selected non-normal configuration types. If you have not yet chosen a non-normal configuration type, selecting this button displays a list of the airplane's available non-normal configuration types.

Field	Description
LANDING WT (ENROUTE screen)	Displays the estimated landing weight. Enter a value to calculate landing field length. If your organization includes the OPT weight-and-balance option, the application automatically calculates an estimated landing weight using the weight-and-balance data.
VREF ADD	Displays the approach speed increment to account for wind and gust additives.

To calculate dispatch-related landing performance:

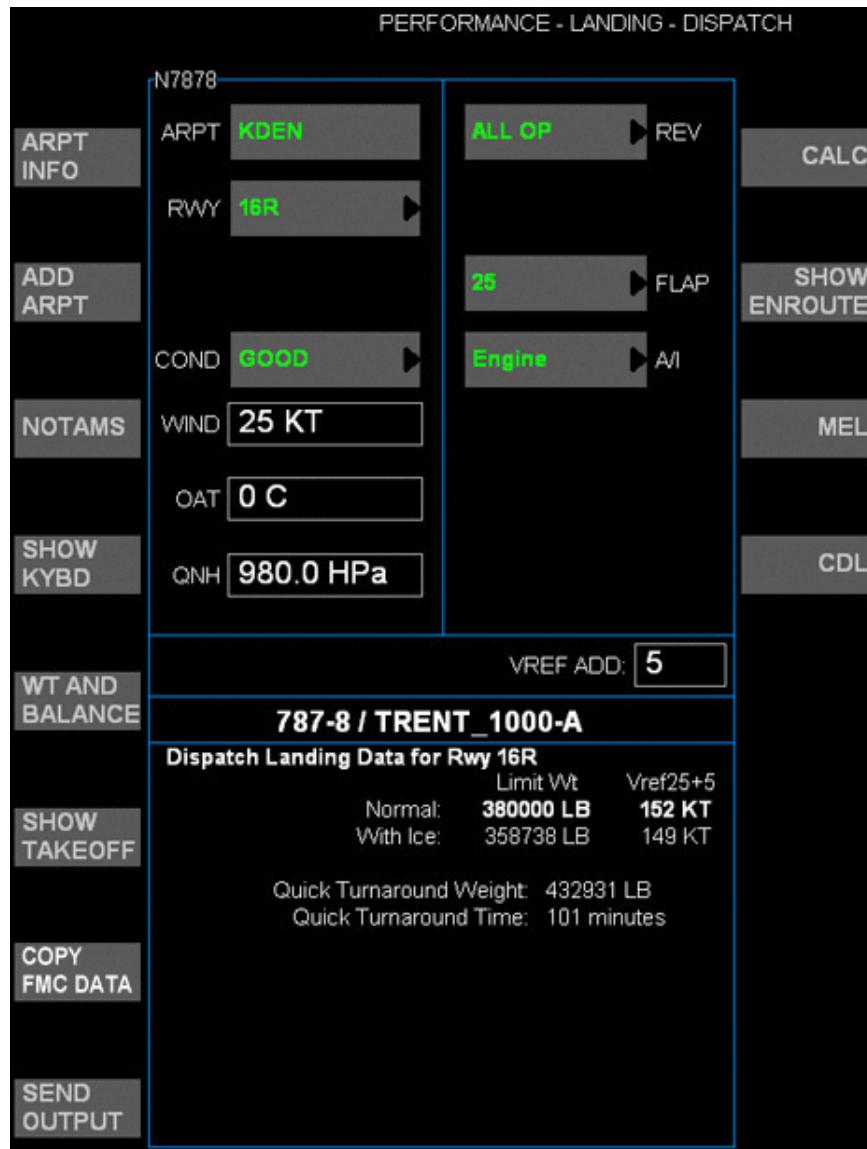
1. Access the LANDING screen.
2. If necessary, select **SHOW DISPATCH**.
3. Select or enter the appropriate airport information.
4. Select or enter the required information about current conditions.
Each field automatically displays the unit of measure.
5. Select or enter the applicable aircraft configuration information.

NOTE: The application does not automatically apply MEL and CDL selections to enroute landing selections. For example, if you indicate on the MEL screen that the auto brakes are inoperable, you can still select auto brakes on the LANDING - ENROUTE screen.

6. If necessary, enter the VREF ADD value.
7. Select **CALC**.

NOTE: If you entered an invalid figure, the application displays an error message when you select **CALC**. Select **OK** to correct the error.

In the calculation results area, the LANDING - DISPATCH screen displays the calculated performance figures for the aircraft under the defined conditions.



LANDING - DISPATCH screen with calculated performance figures

The dispatch-related landing calculations include the following information:

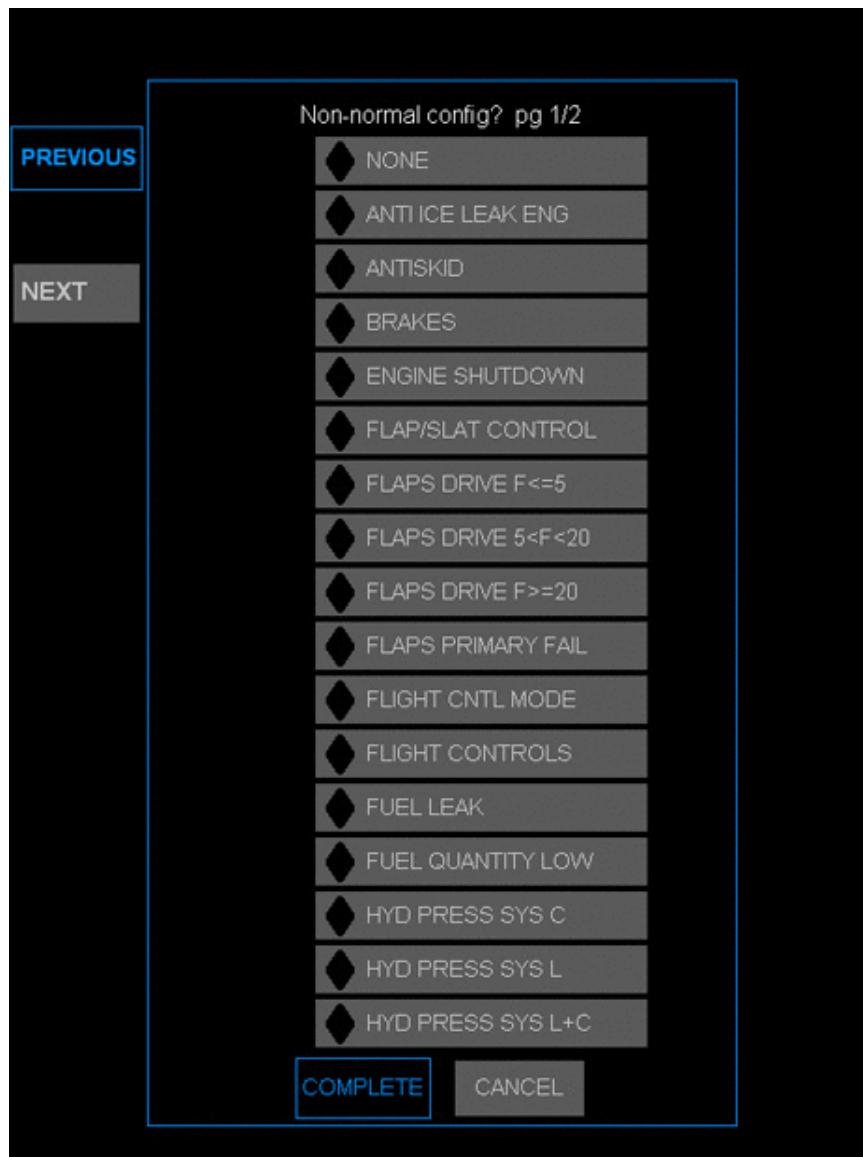
Landing - Dispatch Calculations

Field	Description
Normal	Maximum landing weight and landing reference speed at the indicated flap setting under normal conditions.
With Ice	Maximum landing weight and landing reference speed at the indicated flap setting under icing conditions.
VREF	Reference landing speed.
Quick Turnaround Weight	The maximum landing weight allowed without having to wait at least the quick turnaround time prior to departure.
Quick Turnaround Time	The time required to wait prior to departure following a landing at a weight greater than the quick turnaround weight.

To calculate enroute-related landing performance:

1. Access the LANDING screen.
2. If necessary, select **SHOW ENROUTE**.
3. Select or enter the appropriate airport information.
4. Select or enter the required information about current conditions.
Each field automatically displays the unit of measure.
5. Select or enter the applicable aircraft configuration information.

To include non-normal procedures, select the non-normal procedures button to display a list of available non-normal procedures. If necessary, select **NEXT** to view additional pages.



List of non-normal procedures

- Select the appropriate procedure and then select **COMPLETE**.
6. If necessary, enter the estimated landing weight and VREF ADD value.
 7. Select **CALC**.

NOTE: If you entered an invalid figure, the application displays an error message when you select **CALC**. Select **OK** to correct the error.

In the calculation results area, the LANDING - ENROUTE screen displays the calculated performance figures for the aircraft under the defined conditions.

PERFORMANCE - LANDING - ENROUTE

N7878 ARPT INFO ADD ARPT NOTAMS SHOW KYBD WT AND BALANCE SHOW TAKEOFF COPY FMC DATA SEND OUTPUT	ARPT KDEN ALL OP REV RWY 18R 25 FLAP COND MEDIUM Engine A/I WIND 25 KT AUTO BRK 2 BRKS OAT 0 C NONE NNC QNH 980.0 HPa LANDING WT: 370000 VREF ADD: 5 787-8 / TRENT_1000-A Enroute Landing Data for 370000 LB: Vref25+5: 151 KT Landing Distance Required: 7876 FT Landing Distance Available: 16000 FT Recommended Brake Cooling Time: Ground: 0 minutes Inflight (Gear Down): 0 minutes	CALC SHOW DISPATCH MEL CDL
--	---	---

LANDING - ENROUTE screen with calculated performance figures

The enroute-related landing calculations include the following information:

Landing - Enroute Calculations

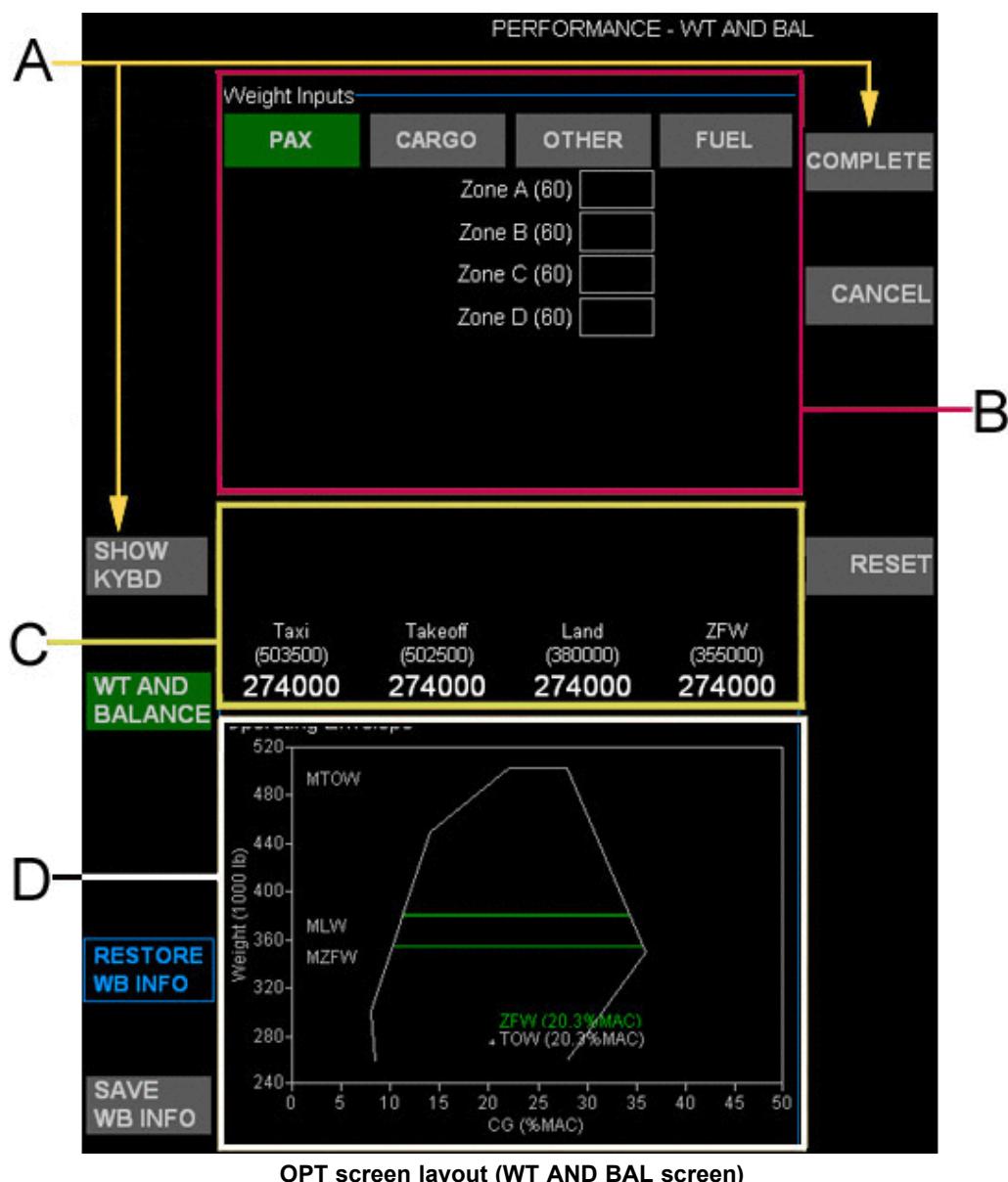
Field	Description
Vref	Reference approach speed.
Landing Distance Required	The landing distance required for the selected runway.
Landing Distance Available	The landing distance available (LDA) for the selected runway.
Recommended Brake Cooling Time	Recommended brake cooling time on the ground and in flight.

Working with Weight and Balance

Use the WT AND BAL (Weight and Balance) screen to define the passenger, cargo, fuel, and other weight data OPT should include in its calculations.

Depending on your organization's settings, the application might delete weight and balance information when you select a new airport, or it might delete this information only on flight initialization or flight close and at application shutdown (if standalone) or EFB shutdown.

The contents of the WT AND BAL screen (such as button labels, performance options, and application colors) are highly configurable, but the screen layout is similar from organization to organization. The information in this section is representative of the WT AND BAL screen.



The following table describes the OPT user interface elements on the WT AND BAL screen:

OPT User Interface Elements (WT AND BAL screen)

Callout	Description
A	Weight and balance menu options
B	Weight inputs area
C	Calculated values of taxi weight, takeoff weight, landing weight, and zero fuel weight as based on entered data
	<p>NOTE: Before you enter any data, the operating envelope and calculated values areas display the operating empty weight and center of gravity for the airplane.</p> <p>If a weight exceeds an allowed value, the OPT application displays it in amber.</p>
D	Operating envelope area, which automatically displays the graphical effect of each weight input
	<p>NOTE: Before you enter any data, the operating envelope and calculated values areas display the operating empty weight and center of gravity for the airplane.</p> <p>If a weight exceeds an allowed value, the OPT application displays it in amber.</p>

Using the Weight and Balance Menu Options

Depending on your organization's settings, OPT can display the following menu options on the WT AND BAL screen:

Menu Options

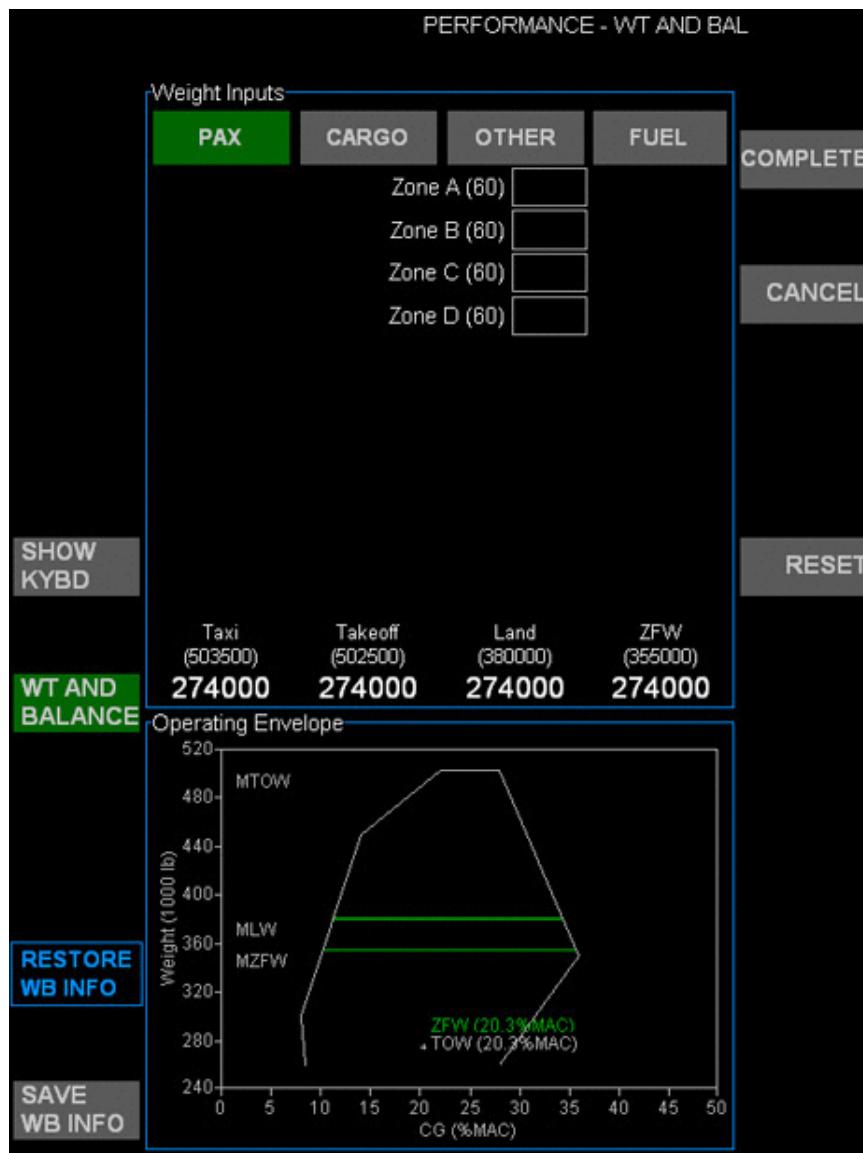
Menu Option	Description
Weight input section buttons	Displays the associated section for factoring passenger, cargo, other, and fuel weights. Your organization defines the labels on these buttons. As OPT calculates the totals for each section, it displays the totals on the button in parentheses.
SHOW KYBD/ HIDE KYBD	Displays or hides the virtual keyboard.
RESTORE WB INFO	Restores a configuration that you input and saved using the SAVE WB INFO button.
SAVE WB INFO	Saves the weight-and-balance settings according to your input. After you select this button, the application prompts you for a file name in which to save the data.
COMPLETE	Applies weight and balance values into takeoff or landing calculations.
CANCEL	Discards any calculations you made and closes the WT AND BALANCE screen.
RESET	Resets all weight values to zero.

The Operating Envelope section dynamically displays the effect of each weight input on a graph at the bottom of the screen. The calculated taxi weight, takeoff weight, landing weight, and zero fuel weight (ZFW), which are based on entered data, appear above the graph. The position of each weight type is noted on the Operating Envelope graph. When any of these weights is outside the operating envelope, it displays in amber.

Calculating Weight and Balance

To calculate weight-and-balance performance:

1. Access the WT AND BAL screen.
2. To define the number of passengers in each passenger zone, select **PAX** and enter the total number in each zone.



WT AND BAL screen with PAX section

The number in parentheses indicates the maximum number of passengers each zone can accommodate.

3. To define the weight of cargo that has been loaded in each hold, select **Cargo** and enter the total weight in each zone.

PERFORMANCE - WT AND BAL

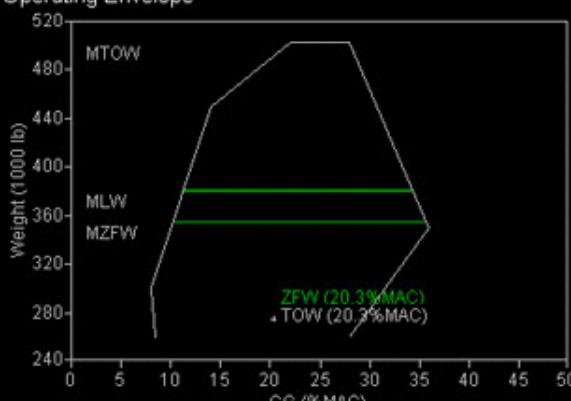
Weight Inputs			
PAX	CARGO	OTHER	FUEL
Zone 1 (6000 lb)	<input type="text"/>		
Zone 2 (5000 lb)	<input type="text"/>		
Zone 3 (5000 lb)	<input type="text"/>		
Zone 4 (6000 lb)	<input type="text"/>		
Potable Water (2000 lb)	<input type="text"/>		

COMPLETE
CANCEL

SHOW KYBD
RESET

Taxi (503500)	Takeoff (502500)	Land (380000)	ZFW (355000)
274000	274000	274000	274000

Operating Envelope

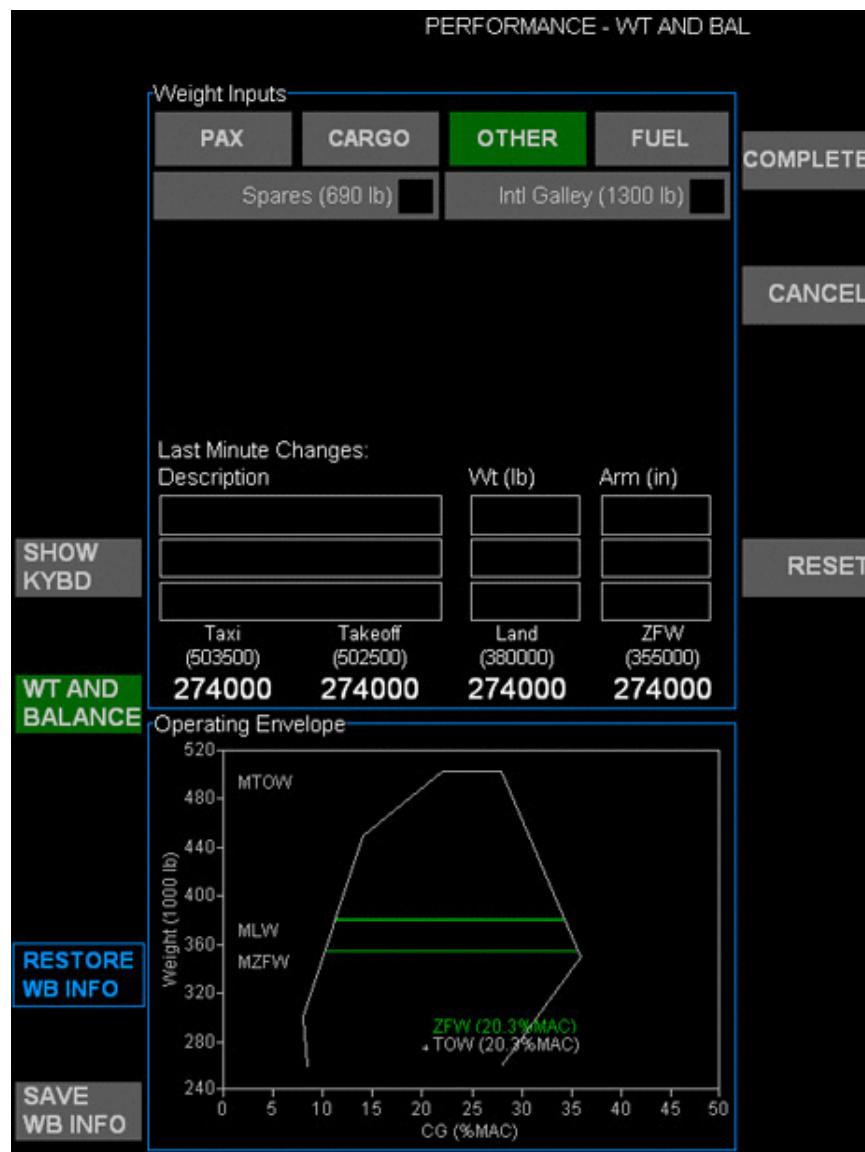


WT AND BALANCE
RESTORE WB INFO
SAVE WB INFO

WT AND BAL screen with **CARGO** section

The number in parentheses indicates the maximum weight each zone can accommodate.

4. To set the weight of “other” items, select **OTHER**. “Other” items can include fixed weight allowances for equipment and last-minute changes.



WT AND BAL screen with OTHER section

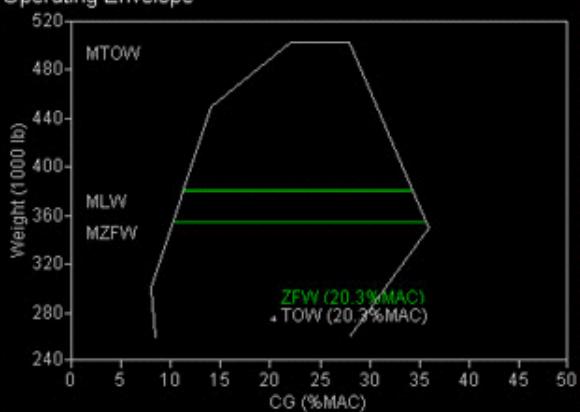
- To include fixed-weight items, select an item check box. Its weight appears in parentheses.
 - To include last-minute changes, type the description, weight, and corresponding balance arm for the item. Last-minute changes can include equipment, passengers, or cargo that is not already listed on the manifest for the flight.
5. To set fuel weights, select **FUEL**.

PERFORMANCE - WT AND BAL

Weight Inputs			
PAX	CARGO	OTHER	FUEL
Mains 12 (74830 lb)	<input type="text"/>		FAST FUEL
Center (151483 lb)	<input type="text"/>		
Taxi-out Fuel (lb):	<input type="text"/>		COMPLETE
Planned Trip Fuel (lb):	<input type="text"/>		CANCEL
Fuel Density (lb/usg):	6.750		

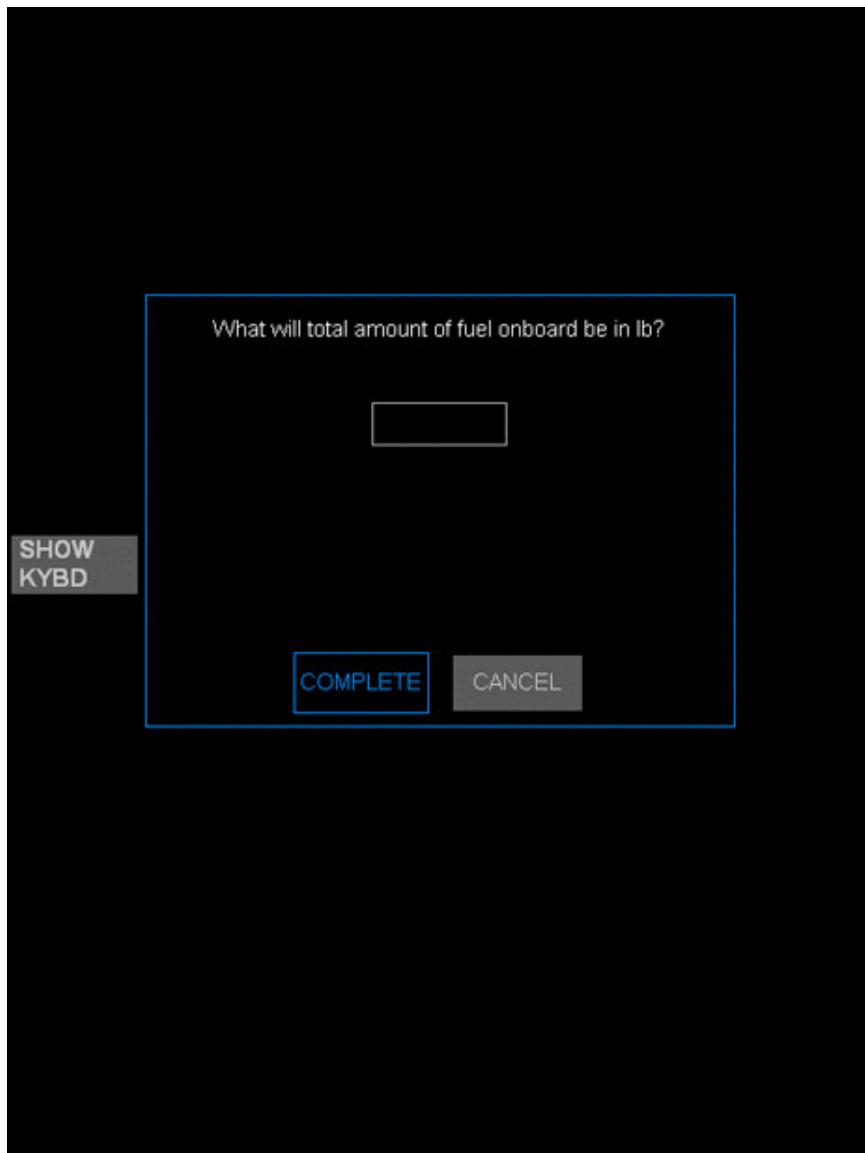
SHOW KYBD			RESET
Taxi (503500)	Takeoff (502500)	Land (380000)	ZFW (365000)
274000	274000	274000	274000

Operating Envelope



WT AND BAL (Weight and Balance) screen with FUEL section

- To define specific values, type values in the fuel weights (Mains and Center) and fuel requirements (Taxi-out Fuel, Planned Trip Fuel, and Fuel Density) fields.
- Select FAST FUEL to display the Fast Fuel screen and set OPT to automatically determine the weight loading of each fuel tank based on the airplane's configuration.



Fast fuel screen

Enter the total amount of fuel that is being loaded onto the airplane and then select **COMPLETE**.

6. Select CALC.

The WT AND BAL screen displays the calculated performance figures for the aircraft under the defined conditions.

NOTE: If you entered an invalid figure, the application displays an error message when you select **CALC**. Select **OK** to correct the error.

NOTE: If the airplane has been loaded incorrectly or a data entry error results in an excessive weight or CG limit, the application displays the erroneous weight in amber and deactivates the **COMPLETE** button. You must correct the error to complete the weight and balance calculation. Until you correct the weight or CG issue, you cannot return to the TAKEOFF or LANDING screen using the **COMPLETE** button.

Updating Takeoff or Landing Information

The OPT application can recalculate performance values after you input data.

To update performance calculations:

1. Access the appropriate screen.
2. Input the new data.
3. Select **CALC** to recalculate the aircraft's performance using the updated conditions.

Working with Advanced Computations

In some cases, the basic calculations might not include all of the performance data you need to include in your calculations. If necessary, you can perform the following tasks:

- Search for and select an airport if the application was unable to retrieve one from the FMS or you need to change airports.
- Add a temporary airport if you need to access an airport that is not included in your organization's database. After you add a temporary airport, you can remove it.
- Review airport data.
- Enter corrections to NOTAMs that have already been loaded onto the airplane.
- Enter MEL or CDL performance penalties.
- Print or save calculation results.

Searching for an Airport

If the OPT application is unable to retrieve an airport from the FMS, use the search feature to search for and location any airport in your organization's database. Search strings for potential airports can include ICAO or IATA airport identifiers, airport names, or city names.

To search for an airport:

1. From the TAKEOFF or LANDING screen, select **ARPT SEARCH**.



ARPT SEARCH screen

2. Use the virtual keyboard to type the first few characters of the airport identifier (ICAO or IATA), airport name, or airport city name into the search field.

The more characters you enter, the more refined the search.

3. Select the appropriate search button.

- Select **SEARCH IDENT** to search only by ICAO or IATA identifier.
- Select **SEARCH ALL** to search by ICAO or IATA identifier, airport name, or airport city name.

The system retrieves and displays the airports that match your search criteria.

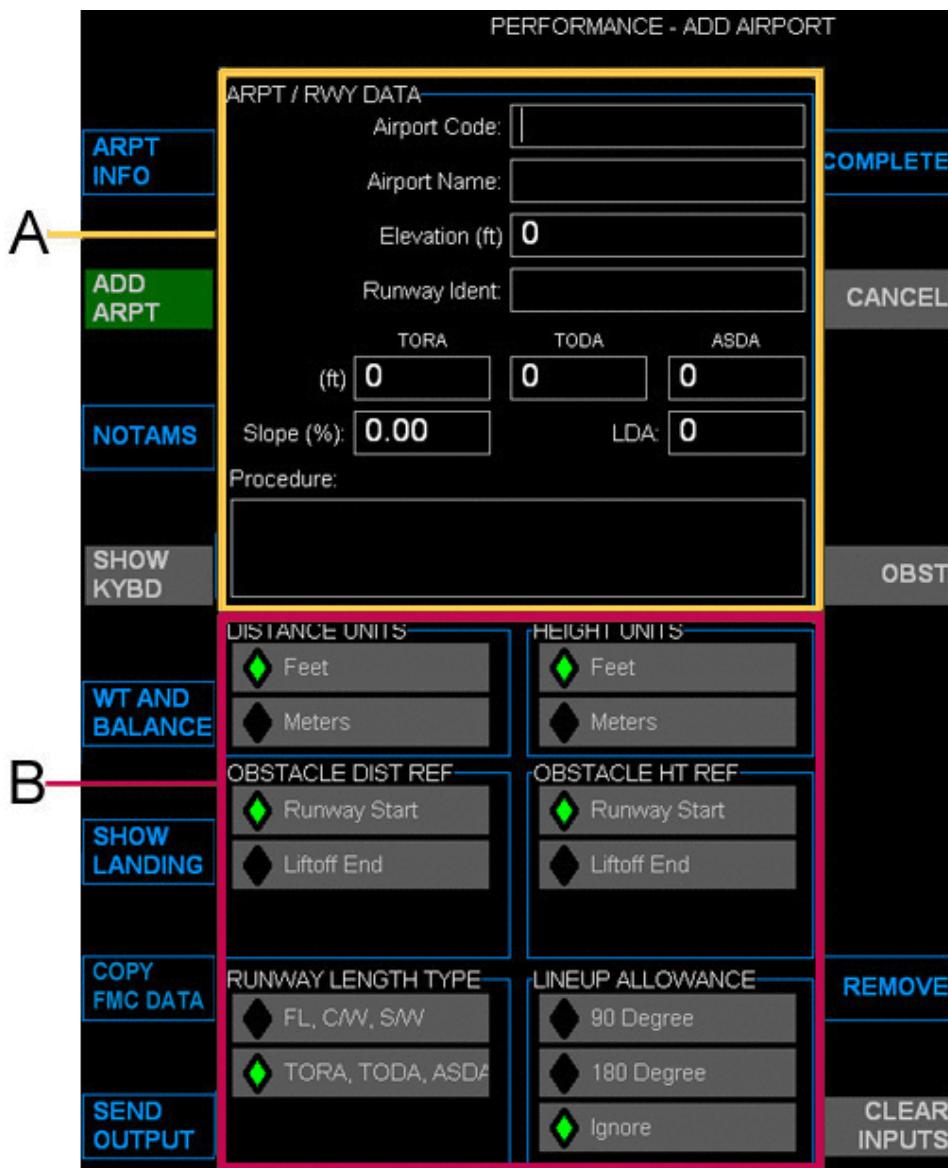
- If the application locates only one result, it automatically selects the airport and displays the TAKEOFF or LANDING screen.
- If the list contains more than four airports, use the PGUP and PGDN bezel buttons to scroll the list.

4. If necessary, select the airport from the search results list.

The application displays the TAKEOFF screen with the name of the selected airport in the ARPT field.

Adding an Airport

If you need to access an airport that is not in your organization's database, use the ADD AIRPORT screen. Any airports that you add are temporary airports, and the OPT application discards them upon application shutdown (if standalone) or EFB shutdown. You can add only one airport for each takeoff and landing.



ADD AIRPORT screen showing ARPT/RWY DATA section

The ADD AIRPORT screen contains the following features:

ADD AIRPORT Screen Elements

Callout	Description
A	Airport and runway or obstacle data area
B	Units section

Using the ADD AIRPORT Menu Options

Depending on your organization's settings, OPT can display the following menu options on the ADD AIRPORT screen:

ADD AIRPORT Menu Options

Menu Option	Description
SHOW KYBD/ HIDE KYBD	Displays or hides the virtual keyboard.
COMPLETE	Saves any changes you made and closes the ADD AIRPORT screen.
CANCEL	Discards any changes you made and closes the ADD AIRPORT screen.
OBST/ARPT/RWY	Displays the obstacle data-entry form or airport/runway data-entry form. Select OBST to define obstacle distance and height. Select ARPT/RWY to define airport and runway data.
REMOVE	Removes the temporary airport from your airport database. This button is active only after you add a temporary airport to your airport database.
CLEAR INPUTS	Deletes all inputs from the screen.

Adding a Temporary Airport

To add a temporary airport:

1. From the TAKEOFF or LANDING screen, select **ADD ARPT**.
The application displays the ADD AIRPORT screen.
2. In the ARPT/RWY area, enter the appropriate airport and runway data:
 - Airport ICAO or IATA identifier (Airport Code).
 - Airport name.
 - The airport's elevation above sea level.
 - Runway identifier.
 - Runway length based on TORA, TODA, and ASDA or FL, CW, and SW.
 - Runway slope percentage.
 - LDA.
 - Any specific runway procedural information. Your organization can create more than one EO procedure for each runway.
3. If any obstacles exist, select **OBST** to display the obstacle distance and height data-entry form.

Performance - Add Airport					
ARPT / RWY DATA		Distance (ft)	Height (ft)	Distance (ft)	Height (ft)
ARPT INFO					
ADD ARPT					
NOTAMS					
SHOW KYBD	Distances are referenced to runway start. Heights are referenced to runway start.				ARPT/RWY
WT AND BALANCE	DISTANCE UNITS		HEIGHT UNITS		
	<input checked="" type="radio"/>	Feet	<input checked="" type="radio"/>	Feet	
	<input type="radio"/>	Meters	<input type="radio"/>	Meters	
SHOW LANDING	OBSTACLE DIST REF		OBSTACLE HT REF		
	<input checked="" type="radio"/>	Runway Start	<input checked="" type="radio"/>	Runway Start	
	<input type="radio"/>	Liftoff End	<input type="radio"/>	Liftoff End	
COPY FMC DATA	RUNWAY LENGTH TYPE		LINEUP ALLOWANCE		REMOVE
	<input type="radio"/>	FL, C/W, SAW	<input type="radio"/>	90 Degree	
	<input checked="" type="radio"/>	TORA, TODA, ASDA	<input type="radio"/>	180 Degree	
SEND OUTPUT	<input type="radio"/>		<input type="radio"/>	Ignore	CLEAR INPUTS

ADD AIRPORT screen showing obstacles form

Enter obstacle distance and height data.

4. In the units section, set the units to apply to the calculations.
 - DISTANCE UNITS
 - HEIGHT UNITS
 - OBSTACLE DIST REF—Obstacle Distance Reference (Use only if an obstacle exists.)
 - OBSTACLE HT REF—Obstacle Height Reference (Use only if an obstacle exists.)
 - RUNWAY LENGTH TYPE (select TORA, TODA, ASDA or FL, CW, SW)
 - LINEUP ALLOWANCE (select 90 Degree, 180 Degree, or Ignore)

5. Select **COMPLETE**.

The application adds the airport to your airport database.

Removing a Temporary Airport

To delete a temporary airport from your airport database:

- From the TAKEOFF or LANDING screen, select **ADD ARPT**.

The application displays the ADD AIRPORT screen.

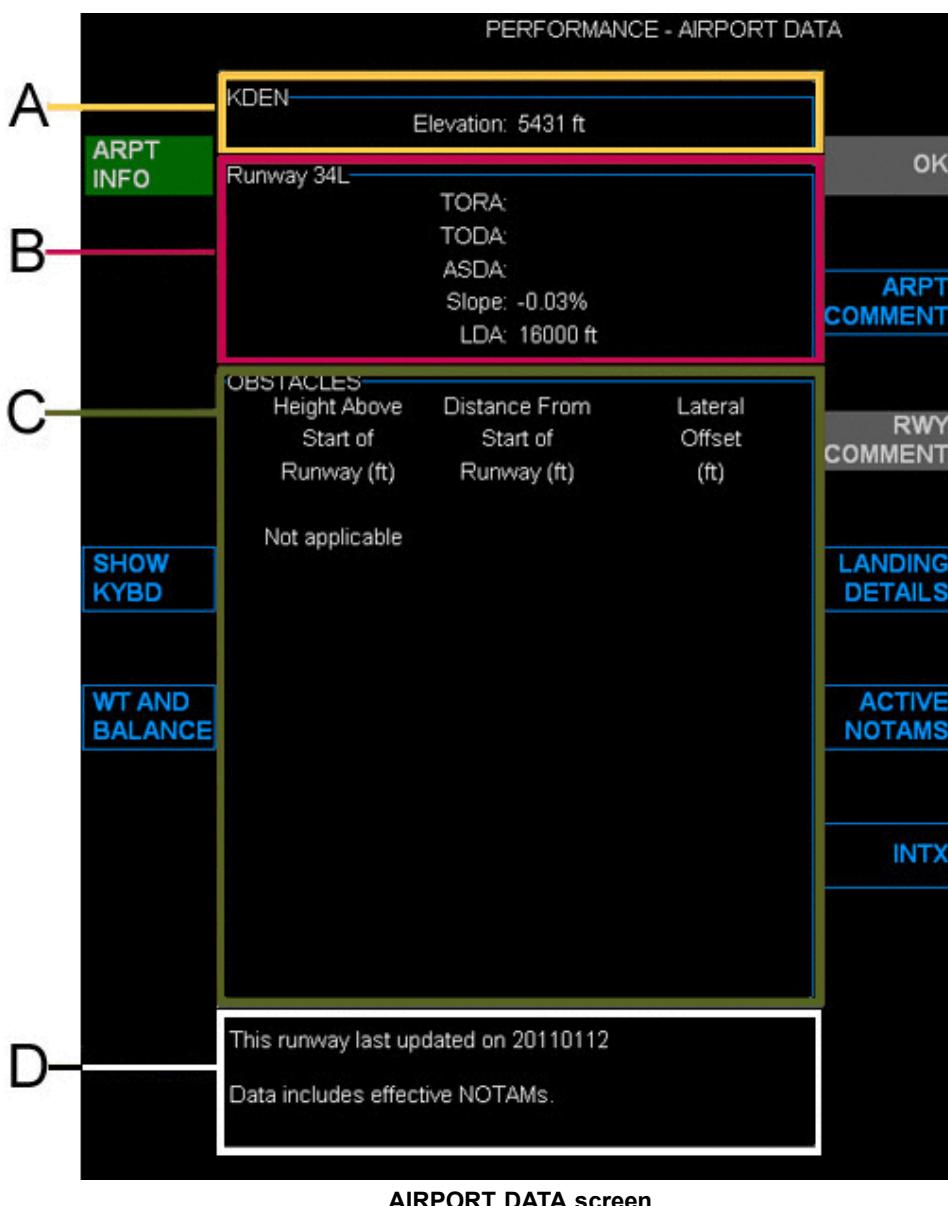
- Select **REMOVE**.

The application removes the airport from your airport database.

Reviewing Airport and Runway Data

Use the AIRPORT DATA screen to review the data the application is using to calculate performance for a specific airport and runway. The application acquires this information from databases that your organization maintains. You can view this information at any time within the OPT application.

To view the AIRPORT DATA screen, select **ARPT INFO**. To enable this button, you must select both an airport and a runway.



The AIRPORT DATA screens contain the following features:

AIRPORT DATA Screen Elements

Callout	Description
A	Airport Information, which displays the airport ICAO or IATA identifier and elevation
B	Runway information, which includes runway identifier; runway length based on TORA, TODA, and ASDA or FL, CW, and SW; runway slope percentage; and LDA
C	Obstacles section, which includes obstacle height above the liftoff (LO) or runway start (RS) end of the runway, distance from the LO or RS end of the runway, and lateral offset, which is the distance from the runway centerline
D	Additional information, including the time the runway information was last updated and other information that your organization defines

Using the AIRPORT DATA Menu Options

Depending on your organization's settings, OPT can display the following menu options on the AIRPORT DATA screen:

Menu Options

Menu Option	Description
SHOW KYBD/ HIDE KYBD	Displays or hides the virtual keyboard.
OK	Closes the AIRPORT DATA screen.
ARPT COMMENT	Displays any comments about the selected airport. Select OK to return to the AIRPORT DATA screen.
RWY COMMENT	Displays any comments about the selected runway. Select OK to return to the AIRPORT DATA screen.
LANDING DETAILS/TAKEOFF DETAILS	Displays any landing or takeoff details, depending on whether you are viewing data about the origin or destination airport. Select OK to return to the AIRPORT DATA screen. NOTE: The data that displays on the TAKEOFF DETAILS screen is informational only. Do not attempt to use it to modify takeoff procedures and techniques or to make decisions regarding runway usage.
ACTIVE NOTAMS	Displays active NOTAMs for the selected runway. Select OK to return to the AIRPORT DATA screen.
INTX	Displays intersection information for the selected runway. Select OK to return to the AIRPORT DATA screen.

Reviewing Airport Data

To review airport data:

- From the TAKEOFF or LANDING screen, select **ARPT INFO**.

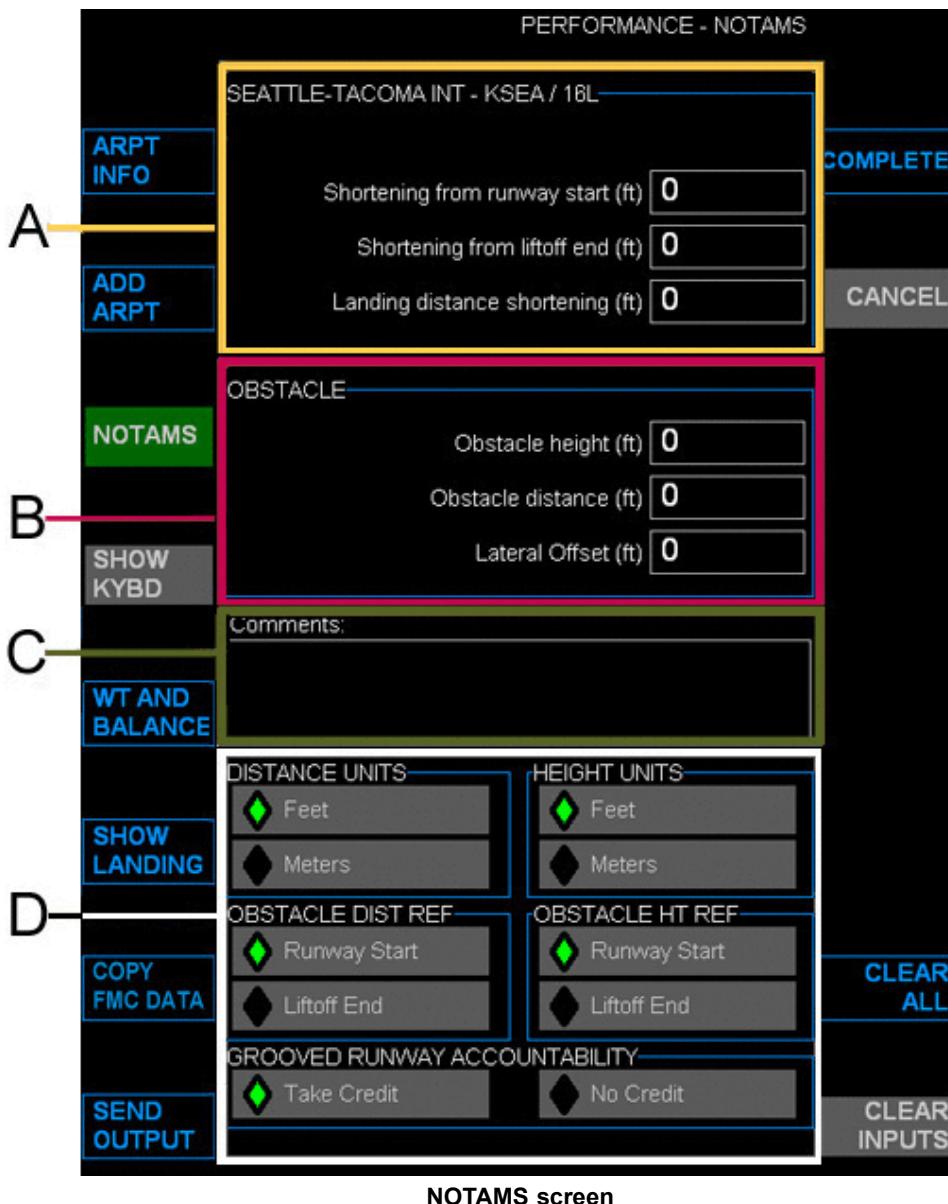
The application displays the AIRPORT DATA screen.

- Select **OK** to close the AIRPORT DATA screen.

Working with NOTAM Information

Use the NOTAMS screen to enter information about temporary runway or obstacle issues such as runway construction or temporary modifications.

Administrators can enter NOTAM data that is associated with effective dates.



The NOTAMS screens contain the following features:

NOTAMs Screen Elements

Callout	Description
A	Airport Information, which displays the airport name and selected runway
B	Obstacle information
C	Comments section
D	Units section

Using the NOTAMs Menu Options

Depending on your organization's settings, OPT can display the following menu options on the NOTAMS screen:

Menu Options

Menu Option	Description
SHOW KYBD/ HIDE KYBD	Displays or hides the virtual keyboard.
COMPLETE	Applies NOTAM values to takeoff or landing calculations.
CANCEL	Discards any changes you made and closes the NOTAMs screen.
CLEAR ALL	Removes the temporary NOTAM from your airport database. This button is active only after you add a temporary NOTAM to your airport database.
CLEAR INPUTS	Deletes all inputs from the screen.

Including NOTAM Information

To include NOTAM information in your airport database:

1. From the TAKEOFF or LANDING screen, select **NOTAMS**.
2. In the airport information section, enter the length of any unusable runway sections in the following fields:
 - Shortening from runway start
 - Shortening from liftoff end
 - Landing distance shortening
3. In the obstacle information section, enter obstacle information in the following fields:
 - Obstacle height
 - Obstacle distance
 - Lateral Offset
4. In the comments section, enter any additional comments.
5. In the units section, set the units to apply to the NOTAM calculations.
 - DISTANCE UNITS
 - HEIGHT UNITS
 - OBSTACLE DIST REF—Obstacle Distance Reference (Use only if an obstacle exists.)
 - OBSTACLE HT REF—Obstacle Height Reference (Use only if an obstacle exists.)
 - GROOVED RUNWAY ACCOUNTABILITY (Select Take Credit or No Credit.)
6. Select **COMPLETE**

The TAKEOFF or LANDING screen displays a horizontal amber line under the **NOTAM** button to indicate that the OPT application will include NOTAM data in the performance calculations for the selected airport and runway.



TAKEOFF screen with indication that NOTAMs exist

7. Select **CALC** from the TAKEOFF or LANDING screen to calculate the aircraft's performance with the NOTAM information.

NOTAM information remains active until you clear it.

Working with MEL or CDL Items

You can identify and include minimum equipment list (MEL) or configuration deviation list (CDL) performance penalties in takeoff and landing performance calculations. Select a performance-related MEL or CDL item to activate performance adjustments for that item. All MEL and CDL items remain active until cleared; the OPT application will not clear them on flight close or power interruption unless specified by your organization to do so.

NOTE: The application does not automatically apply MEL and CDL selections to enroute landing selections. For example, if you indicate that the auto brakes are inoperable on the MEL screen, you can still select auto brakes on the LANDING - ENROUTE screen.

Viewing MEL and CDL Items in EDB

Your organization might configure the EFB so that you can access the EFB Document Browser (EDB) application directly from the MEL or CDL screen without returning to the MAIN MENU screen. If this feature is enabled, select the question mark icon next to the appropriate content to view the content in the EDB.

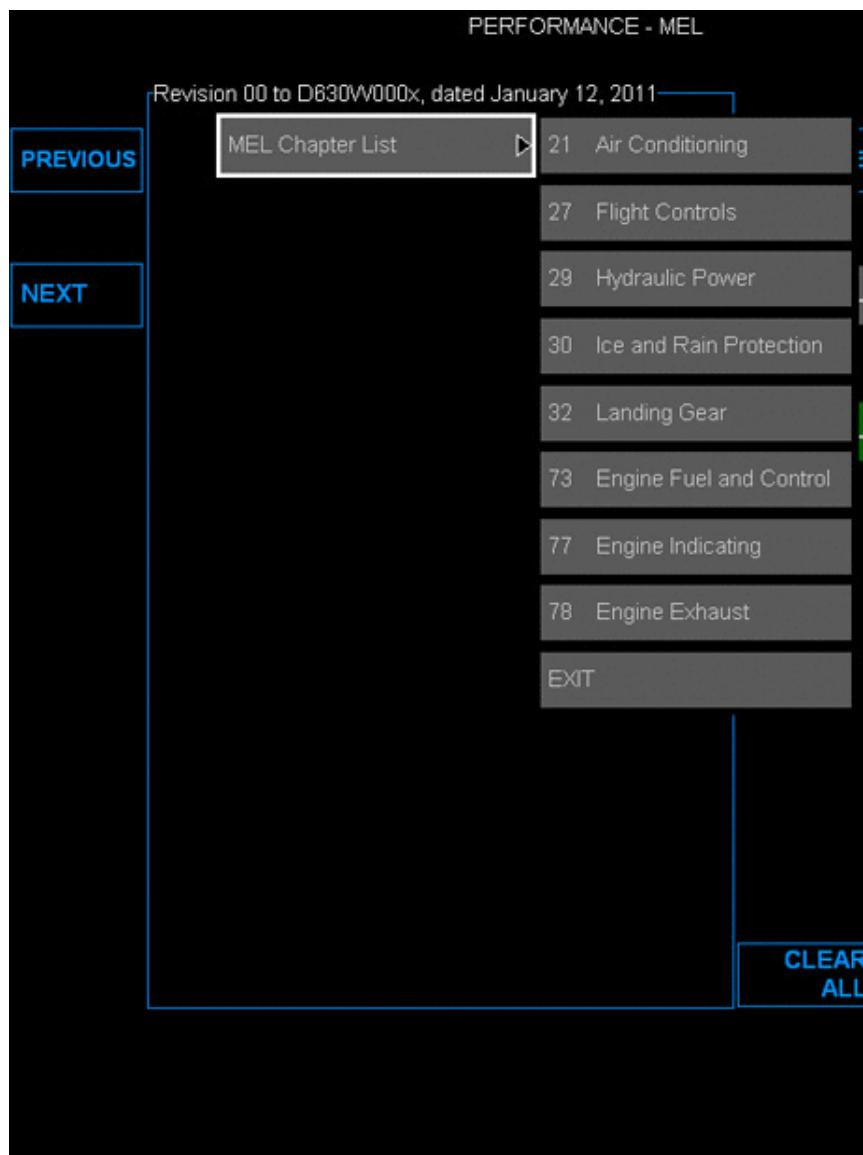
To return to the OPT application, select the **RETURN** button.

Including MEL or CDL Items

To include MEL or CDL performance penalties in your performance plan:

1. From the TAKEOFF or LANDING screen, select **MEL** or **CDL**.

The MEL or CDL screen displays a Chapter List, which contains section headings for the aircraft's MEL or CDL (depending on your choice) segregated into Air Transport Association of America (ATA) chapters.



MEL screen with expanded chapter list

2. Select the appropriate chapter from the Chapter List.

The application displays a list of items for the selected chapter.

3. Select the appropriate items from the list.

The application indicates current selections with a green check mark. Additionally, the application displays the item's number in the Active Items list at the bottom of the screen.

4. Select **COMPLETE** to accept the selections.

The TAKEOFF or LANDING screen displays a horizontal amber line under the **MEL** or **CDL** button to indicate that the OPT application will include MEL or CDL data in performance calculations.



5. Select **CALC** to calculate the aircraft's performance with the MEL or CDL information.

Removing MEL or CDL Items

To delete MEL or CDL items from your performance plan:

1. From the MEL or CDL screen, select a specific item or select **CLEAR ALL** to clear all items.
2. Select **COMPLETE**.

The TAKEOFF or LANDING screen no longer displays a horizontal amber line under the **MEL** or **CDL** button.

Printing or Saving Calculations

Depending on your organization's setup, you might be able to print or save the following types of completed calculations for future reference:

- Aircraft data
- Takeoff and landing calculations
- MEL and CDL data
- NOTAM data

To print or save calculations:

1. Select **SEND OUTPUT**.
2. Select the output type.
3. Select **DONE**.
4. If necessary, select the appropriate printer and choose **OK**.

For some installations, selecting **SEND OUTPUT** provides options for transferring takeoff speeds and other applicable data to the FMS.

Troubleshooting

The OPT application displays error messages during data-entry functions, enabling you to complete or revise the data. To resolve an issue, review the application feedback and perform the recommended action. If the recommended action does not correct the issue, contact your system administrator.

EFB DOCUMENT BROWSER

Use the EFB Document Browser application to view and search for electronic content that has been uploaded to your EFB. This content can include documents and guides that are unique to your organization, such as a *Flight Crew Operations Manual*, a *Route Operations Manual*, and a Minimum Equipment List (MEL).

Each of the documents on your EFB can be in a different format. For example, the MEL might be in PDF format, and the *Flight Crew Operations Manual* might be in XML or HTML format. Depending on the type of document, the EFB Document Viewer menu displays different options, and the documents demonstrate different behaviors in the viewer.

NOTE: The term “document” describes a book, guide, handbook, or other entire document. The term “chapter” refers to a section, part, or other division of a document.

Pilots use the EFB Document Browser to perform the following tasks:

- View XML, HTML, and PDF content
- Bookmark content for easy future reference
- Search for XML, HTML, and PDF content
- Print XML, HTML, and PDF content

Using the EFB Document Browser Application

The EFB Document Browser application exhibits standard EFB behavior. For more information, see the “Using the EFB” chapter.

Understanding Document Effectivity

Organizations might associate document revisions with a date upon which the revisions become effective (effectivity date) and a date upon which the revisions are no longer effective (expiration date).

Upon flight initialization, the EFB Document Browser application automatically selects the currently effective revision of each document according to its effectivity date range and the flight start date as reported by the EFB. In some cases, all uploaded revisions of a document might be out of date, more than one revision might be effective on the current date, or one revision might be effective at flight start date and the second revision might be effective later in the flight. In such cases, the application displays a MEMO notification upon flight initialization and prompts you to select the appropriate document.

Understanding XML and HTML Document Conventions

XML and HTML documents that conform to the EFB Document Browser XML and HTML schema adhere to the following conventions:

- Warnings display the “WARNING” text in red capital letters.
- Linked text is denoted by a dark gray box around the specific text.
- Notes display the “NOTE” text in white capital letters.
- Cautions display the “CAUTION” text in amber capital letters.

The XML and HTML Conventions table shows examples of these document conventions.

XML and HTML Conventions

Name	Convention Example
Warning	WARNING Extreme caution should be exercised when flying in proximity to obstructions of terrain in low temperatures and pressures.
Linked text	The formatting and coding of these observations are contained in paragraph 7-1-30 , Key to Aviation Routine Weather Report (METAR).
Note	NOTE When the barometric pressure exceeds 31.00 inches Hg, see paragraph 7-2-2, Procedures, for the altimeter setting procedures.
Caution	CAUTION Standard pressure and sea level is 15 degrees Celsius (59 degrees Fahrenheit). The temperature gradient from sea level is minus 2 degrees per

Selecting Content to View

The EFB Document Browser provides a variety of access points to content:

- Select a document from the document library.
- Select a chapter from the table of contents.
- Select a document or chapter from the history list.
- Select bookmarked content.

You can view only one document at a time. If you navigate away from the open content, select **SHOW MENU > RETURN TO OPEN CONTENT** to return to it. After you initialize a flight and select a document for viewing, it remains open until you load another one, even if you close the EFB Document Browser and return later.

If you previously accessed the EFB Document Browser application, the system displays the last screen you viewed before you closed the application.

For XML and HTML documents, the application's default setting is to display the content that is associated with a specific tail number. In some configurations, you can select **SHOW MENU > FILTER CONTENT**. Consult your organization's documentation for more information.

Selecting a Document from the Document Library

The DOCUMENT LIBRARY screen displays all of the documents that have been uploaded to your EFB. The document library can contain single documents and groups of documents. For example, the document library might include a "Flight Operations" group, and that group might contain a collection of documents for pilots to use in the flight deck. Documents are listed individually or grouped into categories. The application indicates grouped documents by including an ellipsis (...) on the document button.



DOCUMENT LIBRARY screen

To select a document from the document library:

1. If necessary, select **SHOW MENU > DOCUMENT LIBRARY**.

If you have already accessed the EFB Document Browser application, the system displays the last screen you had open before you exited the application.

2. Use the **PGUP** and **PGDN** bezel buttons to page through the document list.

3. Select the appropriate document.

Depending on whether the document is divided into chapters, one of two outcomes results:

- If the selected document has no table of contents, the EFB Document Browser displays the document contents in the **VIEW CONTENT** screen.
- If the selected document is divided into chapters, the EFB Document Browser displays the **TABLE OF CONTENTS** screen.

Selecting a Chapter from the Table of Contents

The TABLE OF CONTENTS screen displays a list of the chapters within a document. The document title or abbreviation appears at the top of the screen

To select a chapter from the table of contents:

1. From the TABLE OF CONTENTS screen, select the plus sign (+) next to a chapter name to expand the chapter and locate the topic to view.

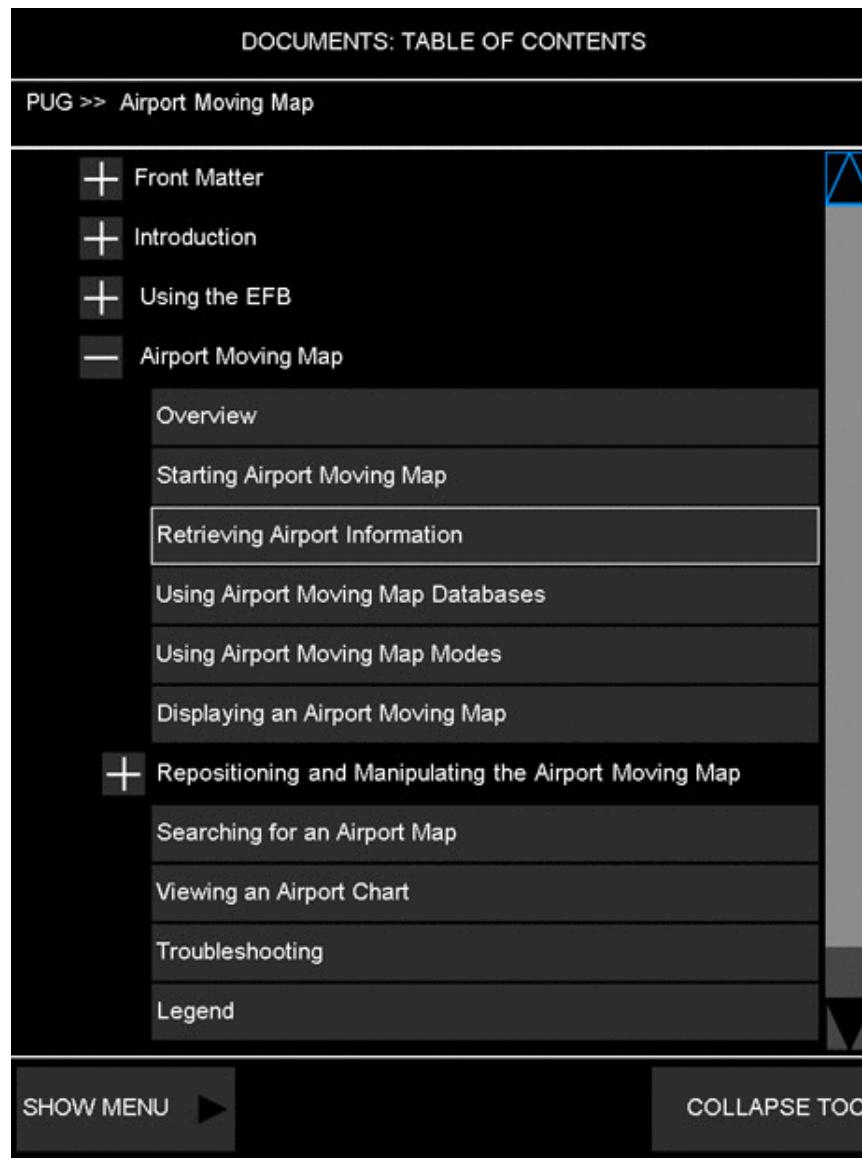
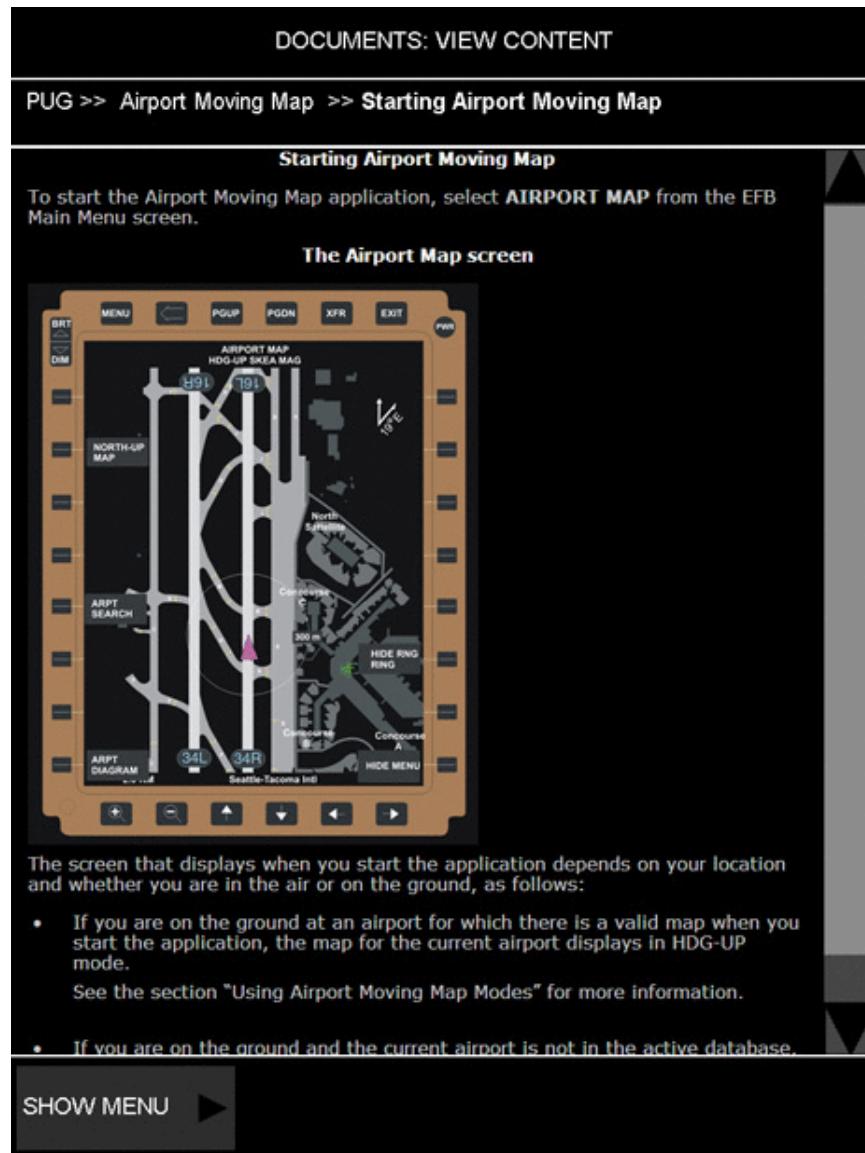


TABLE OF CONTENTS screen

NOTE: Select **COLLAPSE TOC** at the bottom of the screen to collapse all the entries in the table of contents.

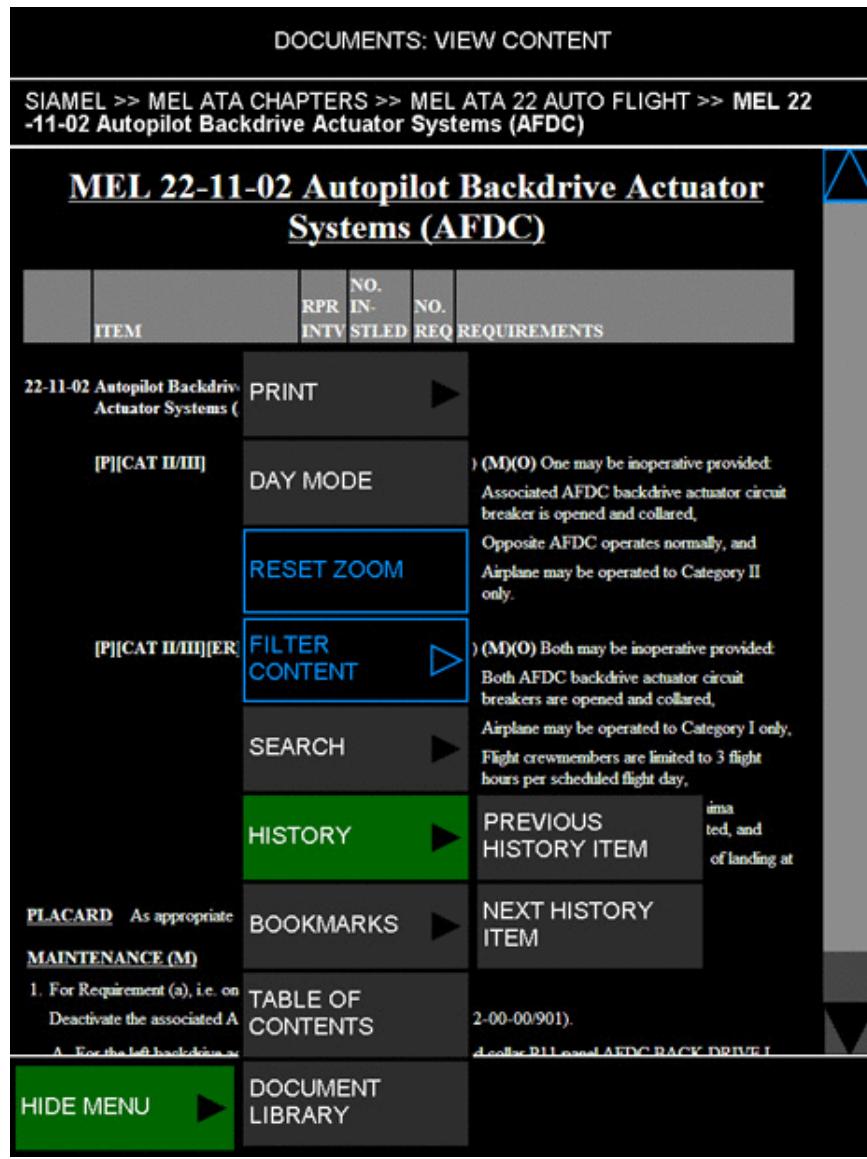
2. Select a topic to display its content in the VIEW CONTENT screen.



VIEW CONTENT screen

Selecting a Document or Chapter from the History List

Because the EFB Document Browser application tracks the order in which you view documents and chapters, the HISTORY menu option enables you to return to a document or chapter you just viewed.



HISTORY Menu Options

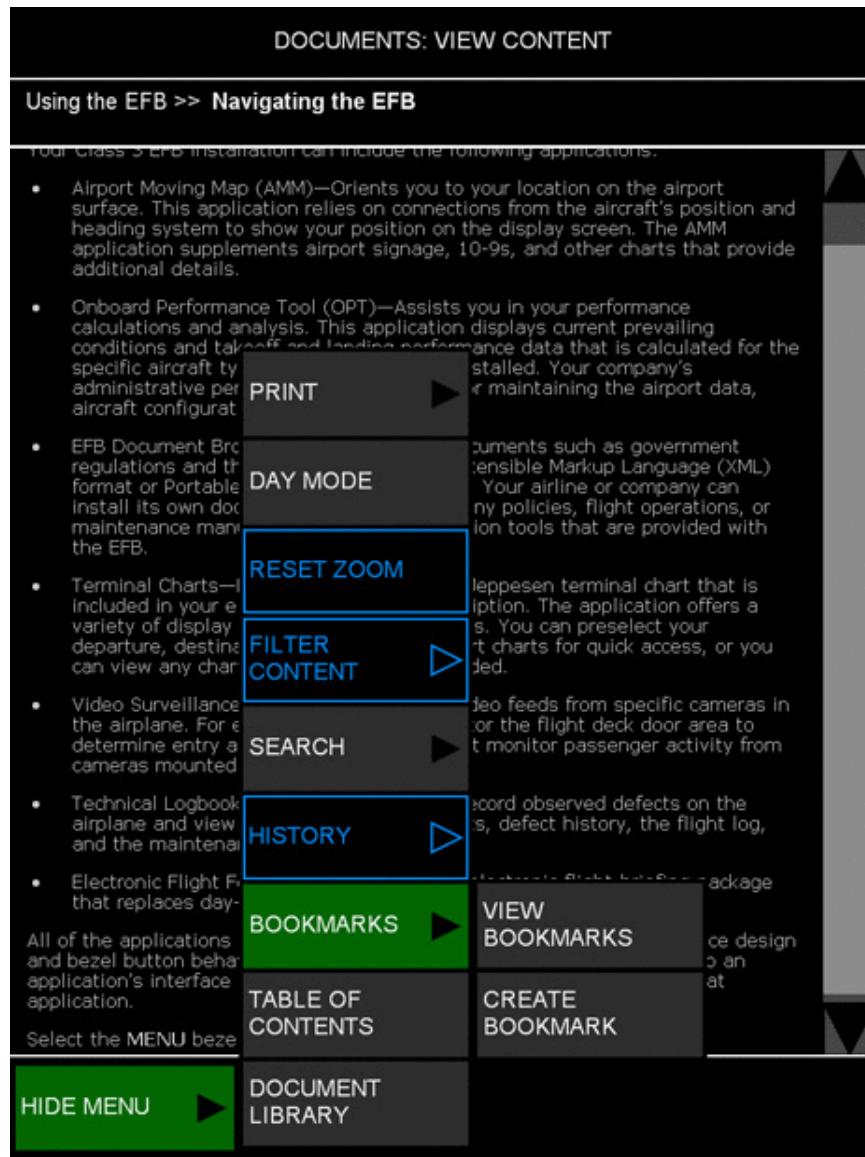
To return to a viewed document or chapter using the **HISTORY** menu options:

- Select **SHOW MENU > HISTORY** and **PREVIOUS HISTORY ITEM** to view the content of the document or chapter you just viewed.
- Select **SHOW MENU > HISTORY** and **NEXT HISTORY ITEM** to return to the content you were viewing before you viewed the **PREVIOUS HISTORY ITEM**.

NOTE: The EFB clears the EFB Document Browser history list each time you initialize a flight.

Selecting Bookmarked Content

To select bookmarked content, you must first create the bookmark. Use bookmarks to mark content within a chapter for easy reference. The bookmark features are available only when a document has a table of contents.



BOOKMARKS Menu Options

After you create a bookmark, the system displays it in a list on the **VIEW BOOKMARKS** screen.

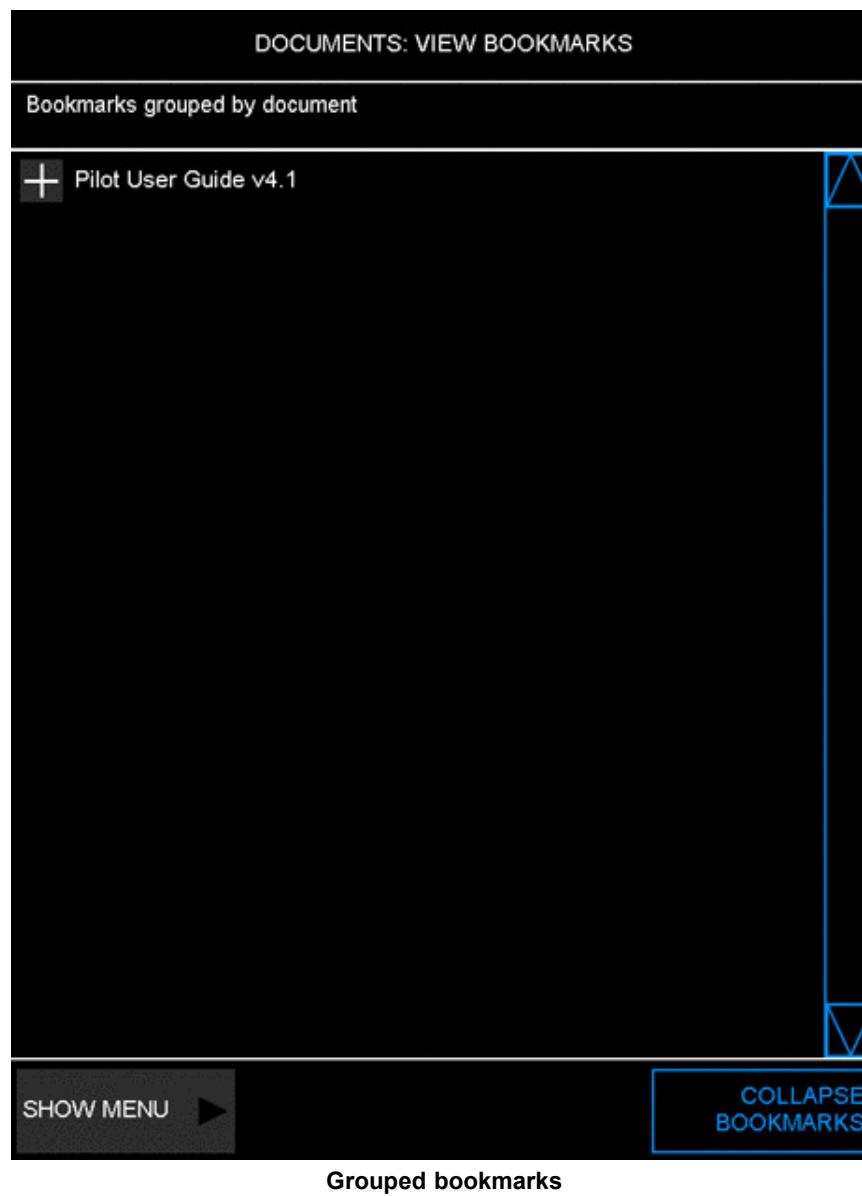
To create a bookmark:

1. Locate the content to bookmark.
2. Select **SHOW MENU > BOOKMARKS** and **CREATE BOOKMARK**.

To view a bookmark:

1. Select **SHOW MENU > BOOKMARKS** and **VIEW BOOKMARKS**.

The EFB Document Browser displays the **VIEW BOOKMARKS** screen. The application organized bookmarks by document.



2. Expand the appropriate document.
3. Select the bookmarked topic from the expanded list.

The content appears in the VIEW CONTENT screen.

DOCUMENTS: VIEW CONTENT

Using the EFB >> Navigating the EFB

Your Class 3 EFB installation can include the following applications:

- Airport Moving Map (AMM)—Orients you to your location on the airport surface. This application relies on connections from the aircraft's position and heading system to show your position on the display screen. The AMM application supplements airport signage, 10-9s, and other charts that provide additional details.
- Onboard Performance Tool (OPT)—Assists you in your performance calculations and analysis. This application displays current prevailing conditions and takeoff and landing performance data that is calculated for the specific aircraft type on which the EFB is installed. Your company's administrative personnel are responsible for maintaining the airport data, aircraft configuration, and policy data.
- EFB Document Browser (EDB)—Displays documents such as government regulations and the **Pilot User Guide** in Extensible Markup Language (XML) format or Portable Document Format (PDF). Your airline or company can install its own documents (including company policies, flight operations, or maintenance manuals) through administration tools that are provided with the EFB.
- Terminal Charts—Enables you to view any Jeppesen terminal chart that is included in your electronic database subscription. The application offers a variety of display settings and viewing tools. You can preselect your departure, destination, and alternate airport charts for quick access, or you can view any chart from any airport as needed.
- Video Surveillance—Enables you to view video feeds from specific cameras in the airplane. For example, you might monitor the flight deck door area to determine entry authorization, or you might monitor passenger activity from cameras mounted in the cabin.
- Technical Logbook (TLB)—Enables you to record observed defects on the airplane and view open and deferred defects, defect history, the flight log, and the maintenance release.
- Electronic Flight Folder (EFF)—Provides an electronic flight-briefing package that replaces day-of-flight paper documentation.

All of the applications installed on your EFB employ standard user interface design and bezel button behavior. For details about elements that are specific to an application's interface and buttons, refer to the section that describes that application.

Select the **MCNLL** bezel button to access the EFB Main Menu screen.

SHOW MENU ►

Bookmarked content

NOTE: The EFB clears the EFB Document Browser bookmarks list each time you initialize a flight.

Navigating Content

The EFB Document Browser application provides various features for navigating content:

- Select the **PGUP** and **PGDN** bezel buttons to scroll the on-screen contents up and down.

If your EFB Document Browser application is installed on a Class 3 EFB, you can also use the arrow buttons on the bezel.

- Use the scroll bar to move through the on-screen content.

Changing the Display of Content

Depending on whether the content comes from a PDF, XML, or HTML document, the EFB Document Browser provides different display options.

For all types of documents:

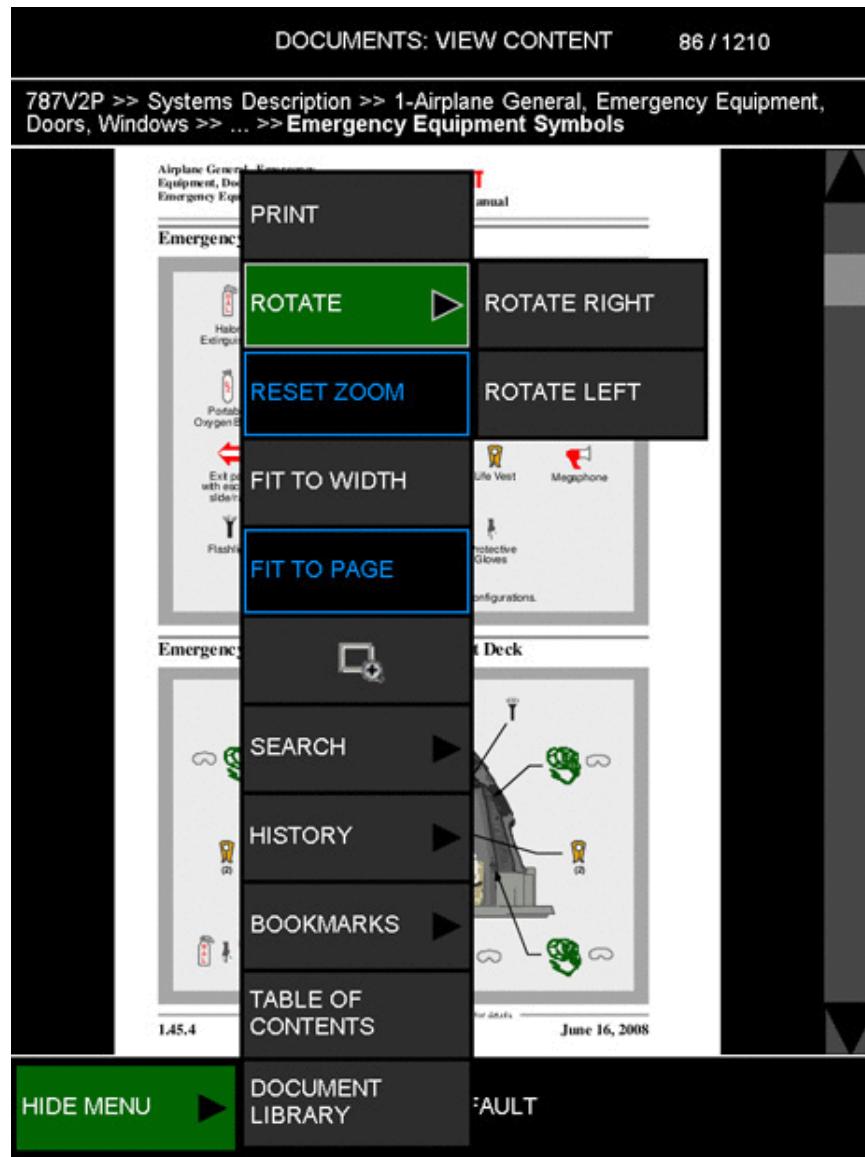
- To increase or decrease the display of the content, select the **ZOOM IN** and **ZOOM OUT** bezel buttons. Depending on the type of document or the content, a zoom scale might show in the bottom center of the **VIEW CONTENT** and **VIEW FIGURE** screens when the display increases or decreases in size.
- To return zoomed content or a zoomed figure to its original size and orientation, select **SHOW MENU > RESET ZOOM**.

For XML and HTML content:

- Select **SHOW MENU > DAY MODE** or **SHOW MENU > NIGHT MODE** to toggle between day mode and night mode viewing. Day mode is suitable for bright light conditions, and night mode is suitable for dark conditions. Both modes must be available for you to toggle between them. Not all documents are designed in both modes.
- Graphics are linked so that they can show in a separate screen that allows zooming. (For information, see the “Modifying Graphic Display Properties” section.)
- If your document has been authored to include various applicability items, use the **FILTER CONTENT** menu option to view applicable content.

For PDF content:

- Select **SHOW MENU > ROTATE** and then **ROTATE RIGHT** or **ROTATE LEFT** to rotate the document display 90 degrees to the left or right while maintaining the same view factors.



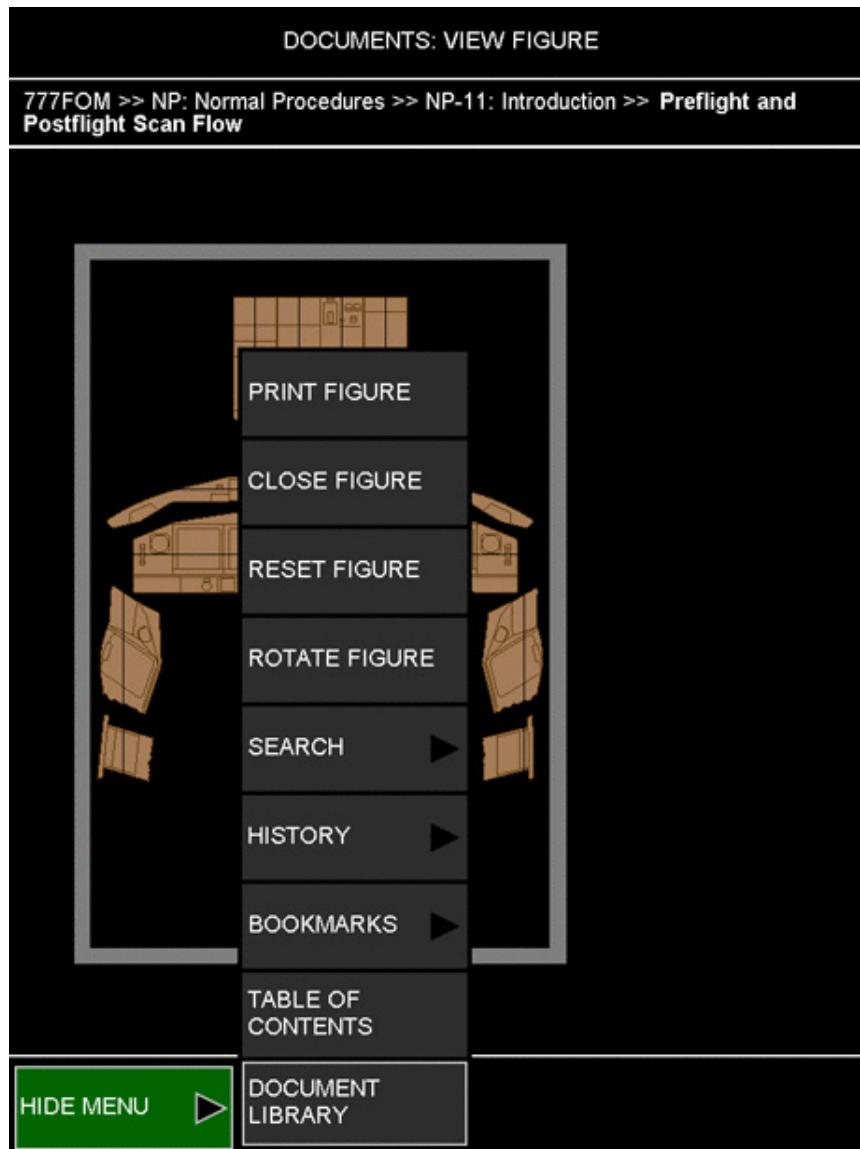
PDF menu options

- Use the **RESET ZOOM** menu option to return a rotated page to its original orientation.
- Use the **FIT TO WIDTH** menu option to display the PDF page across the full width of the **VIEW CONTENT** screen.
- Use the **FIT TO PAGE** menu option to display the entire PDF page in the **VIEW CONTENT** screen.
- Use the **REGIONAL ZOOM** menu option (indicated by an icon) to zoom in to a specific region of the displayed content.

Modifying Graphic Display Properties

If you are working with an XML or HTML document, you can view a figure independently of the document with which it is associated.

1. Select a figure to display it in the **VIEW FIGURE** screen.
2. Select **SHOW MENU** to choose a viewing option.



VIEW FIGURE menu options

3. Choose from among the following viewing options:
 - Use the **ROTATE FIGURE** menu option to rotate the image 90 degrees to the right. Select it again to rotate the figure 90 degrees to the left.
 - Use the **RESET FIGURE** menu option to return the image to its original view.
4. Select **CLOSE FIGURE** to close the **VIEW FIGURE** screen.

Searching for Information within Documents

Use the EFB Document Browser search features to search for text across one, several, or all documents in your document library. The EFB Document Browser application supports searching for multiple words and whole or partial words, and you can limit the search results so that the system locates all words, any word, or the exact phrase you typed into the search field. The EFB Document Browser search function locates only English words.



SEARCH screen

To limit the search results, select from among the following options on the right side of the screen:

- Select **ALL WORDS** to locate all words you entered in the search term field. The words can appear anywhere within the content and do not need to appear in the order in which you entered them.
- Select **EXACT PHRASE** to locate the search term exactly as you entered it into the search term field. For example, searching for the term "RECIRC FAN" using the EXACT PHRASE option returns more search results than would searching for the term "RECIRC FAN INOPERATIVE."
- Select **ANY WORD** to locate any word you entered in the search term field.
- Select **WHOLE WORDS** to limit the search to whole-word matches. To search for whole-word matches, you must choose the ALL WORDS or ANY WORDS option, too. Selecting the WHOLE WORDS check box returns search results in which the characters you entered in the search term compose the entire word. For example, entering the search term "LIMIT" and checking WHOLE WORDS returns search results that contain the word "limit" but no search results that contain the word "limitation." Clearing the WHOLE WORDS check box returns search results in which the characters you entered in the search term exist anywhere within a word. For example, entering the search term "LIMIT" and clearing the WHOLE WORDS check box returns search results that contain the word "limit" and the

words "limitation," "limited," "limiting," and "limits."

Select the **DOCUMENT LIBRARY** button to close the SEARCH screen and return to the DOCUMENT LIBRARY screen without initiating a search. If a search retrieves too many results, select the **CANCEL SEARCH** button to stop the search. The system displays the SEARCH screen again, and you can refine your search criteria.

To search for one or more words:

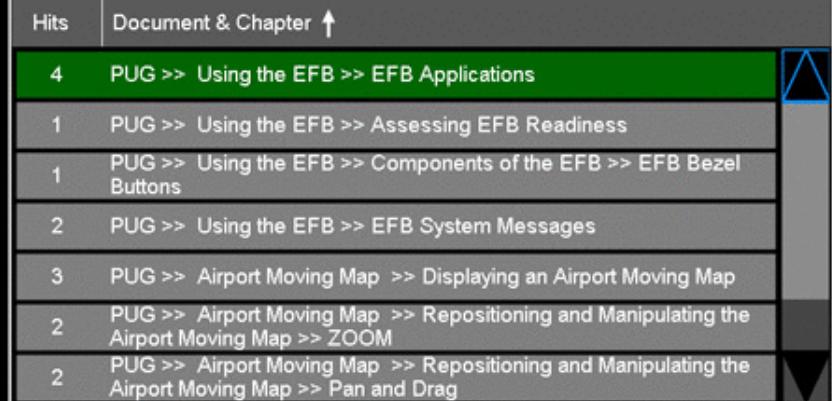
1. Select **SHOW MENU > SEARCH** and **NEW SEARCH**. The system displays the SEARCH screen.
2. In the Select Document(s) area, check the documents to search.

To search all of the documents in the document library, select the **Search ALL Documents** check box. You might need to scroll to the top of the list to see this option. Select the **Search ALL Documents** check box again to clear all document selections.

3. In the column on the right, select the appropriate options to define how the system should search for words. The default search option is ALL WORDS / WHOLE WORDS:
 - **ALL WORDS**
 - **EXACT PHRASE**
 - **ANY WORD**
 - **WHOLE WORDS** (To select this option, first select ALL WORDS or ANY WORDS.)
4. In the **Enter Search Term** field, enter the word or words to search for.
5. Select **SEARCH**.

The SEARCH RESULTS screen lists each document and chapter that contain the search term you specified. The system highlights the search results in yellow.

DOCUMENTS: SEARCH RESULTS

Term: "view"	Result: 1 of 52																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;">Hits</th> <th style="text-align: left; padding: 5px;">Document & Chapter ↑</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px; background-color: #008000; color: white; text-align: center;">4</td> <td style="padding: 5px; text-align: center;">PUG >> Using the EFB >> EFB Applications</td> </tr> <tr> <td style="padding: 5px; background-color: #cccccc;">1</td> <td style="padding: 5px; text-align: center;">PUG >> Using the EFB >> Assessing EFB Readiness</td> </tr> <tr> <td style="padding: 5px; background-color: #cccccc;">1</td> <td style="padding: 5px; text-align: center;">PUG >> Using the EFB >> Components of the EFB >> EFB Bezel Buttons</td> </tr> <tr> <td style="padding: 5px; background-color: #cccccc;">2</td> <td style="padding: 5px; text-align: center;">PUG >> Using the EFB >> EFB System Messages</td> </tr> <tr> <td style="padding: 5px; background-color: #cccccc;">3</td> <td style="padding: 5px; text-align: center;">PUG >> Airport Moving Map >> Displaying an Airport Moving Map</td> </tr> <tr> <td style="padding: 5px; background-color: #cccccc;">2</td> <td style="padding: 5px; text-align: center;">PUG >> Airport Moving Map >> Repositioning and Manipulating the Airport Moving Map >> ZOOM</td> </tr> <tr> <td style="padding: 5px; background-color: #cccccc;">2</td> <td style="padding: 5px; text-align: center;">PUG >> Airport Moving Map >> Repositioning and Manipulating the Airport Moving Map >> Pan and Drag</td> </tr> </tbody> </table>	Hits	Document & Chapter ↑	4	PUG >> Using the EFB >> EFB Applications	1	PUG >> Using the EFB >> Assessing EFB Readiness	1	PUG >> Using the EFB >> Components of the EFB >> EFB Bezel Buttons	2	PUG >> Using the EFB >> EFB System Messages	3	PUG >> Airport Moving Map >> Displaying an Airport Moving Map	2	PUG >> Airport Moving Map >> Repositioning and Manipulating the Airport Moving Map >> ZOOM	2	PUG >> Airport Moving Map >> Repositioning and Manipulating the Airport Moving Map >> Pan and Drag	
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▶ SHOW MENU	▶ OPEN DOCUMENT																

SEARCH RESULTS screen

NOTE: Select a column header to sort the search results by HITS or by DOCUMENT & CHAPTER.

-
6. Select a document and chapter from the list and choose **OPEN DOCUMENT** to display the content in the VIEW CONTENT screen. The EFB Document Browser retains the highlighting of the search results.

DOCUMENTS: VIEW CONTENT

PUG >> Using the EFB >> **EFB Applications**

EFB Applications

Your Class 3 EFB installation includes one or more of the following applications:

- Airport Moving Map—Orients you to your location on the airport surface. This application relies on connections from the aircraft's position and heading system to show your position on the display screen. The Airport Moving Map application supplements airport signage, 10-9s, and other charts that provide additional details.
- Onboard Performance Tool (OPT)—Assists you in your performance calculations and analysis. It displays current prevailing conditions, and takeoff and landing performance data calculated for the specific aircraft type on which the EFB is installed. Your company's administrative personnel are responsible for maintaining the airport data, aircraft configuration, and policy data.
- EFB Document Browser—Displays documents such as government regulations and the **EFB User's Guide** in Extensible Markup Language (XML) format or Portable Document Format (PDF). Your company can install its own documents—such as company policy, flight operations, or maintenance manual—through administration tools provided with the EFB.
- Terminal Charts—Provides you with the ability to **view** any Jeppesen terminal chart included in your electronic database subscription. The application offers a variety of display settings such as orientation, zoom, and split views. You can preselect your departure, destination, and alternate airport charts for easier access, or you can **view** any chart from any airport as needed.
- Video Surveillance—Provides you with the ability to **view** video feeds from specific cameras in the airplane. For example, you might monitor the flight deck door area to determine entry authorization or passenger activity from cameras mounted in the cabin.
- Electronic Logbook—Enables you to record observed faults on the airplane, as well as to **view** open and deferred items, fault history, the flight log, and the maintenance release.

To access any of these applications, select it from the EFB Main Menu.

The Main Menu screen



Viewing Content with Highlighted Search Results

Printing Content from a Flight Deck Printer

Depending on the type of printer that is connected on your flight deck and the type of content you are viewing, the EFB Document Browser supports different printing features

Each time you print, you must wait for the **PRINT** button to become active again before you can submit another print job.

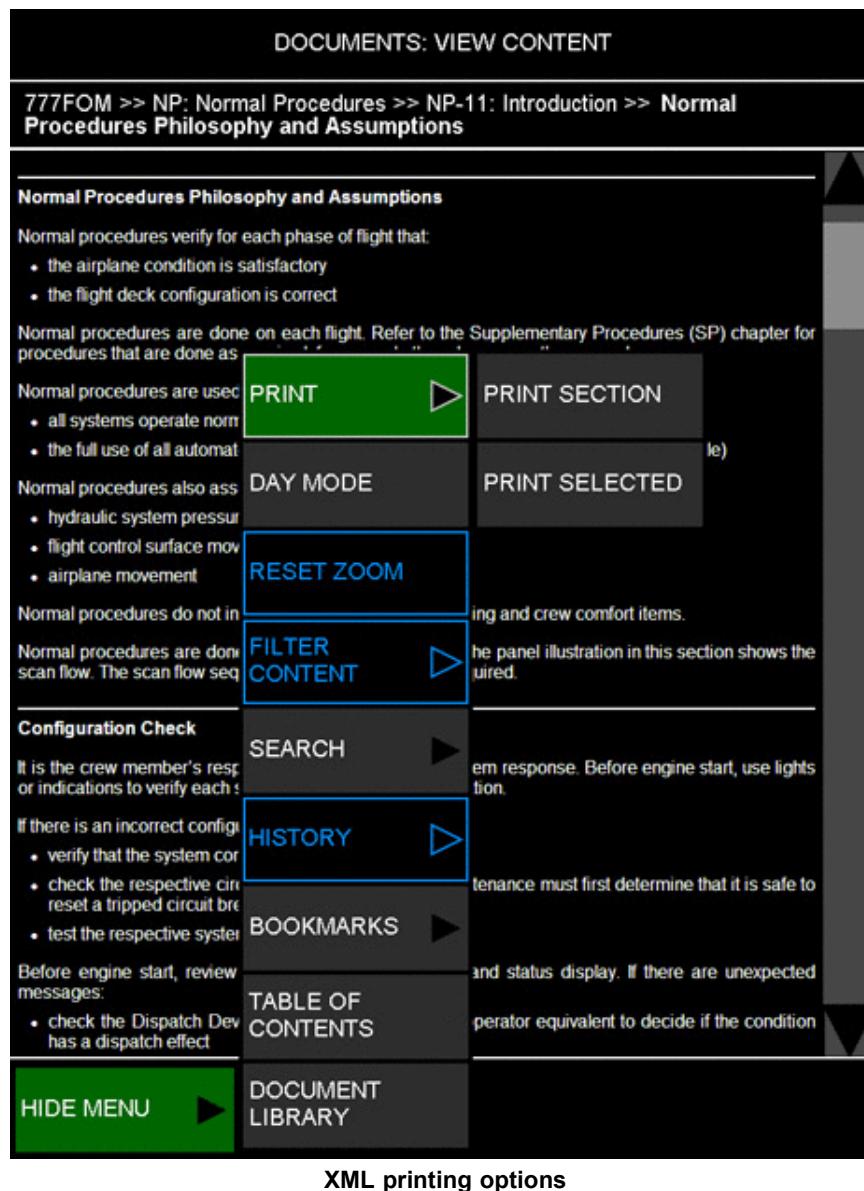
Printing XML Content

If you are viewing XML content, the EFB Document Browser supports the following printing features:

- Section header (“breadcrumb”) printing if the XML content was created in the IXP environment 3.3 or later.
- Selected-content printing if the XML content was created in the IXP environment 3.4 or later.

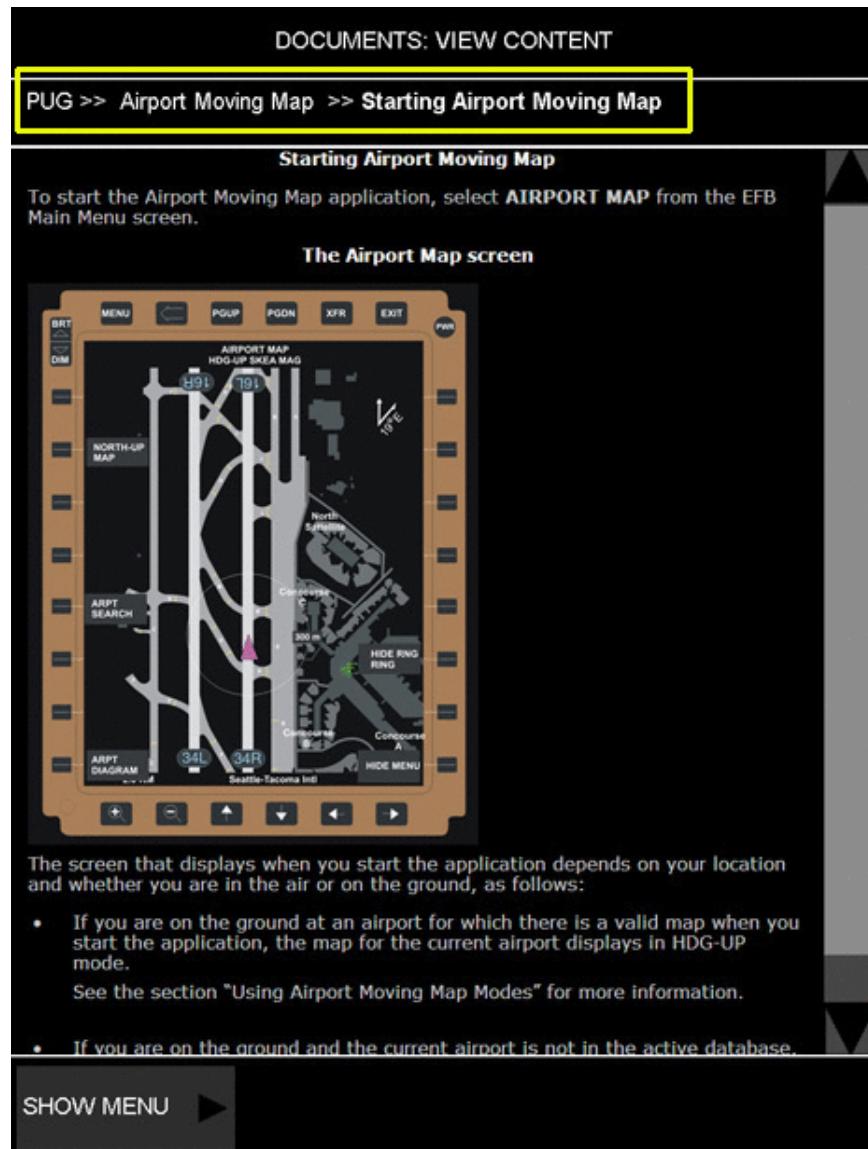
- Text-only content if the printer is a text printer.
- Graphics content if the printer is a graphics printer.

To print XML content, select the appropriate printing option: **PRINT SECTION** or **PRINT SELECTED**.



Printing Section Headers (Breadcrumbs)

If the XML content was created in the IXP environment 3.3 or later, the EFB Document browser supports section header or “breadcrumb” printing. Breadcrumbs appear at the top of the screen and act as navigational aids that illustrate a hierarchical path from the main document to the selected content. The last entry in the breadcrumb path is the current content within the hierarchy. This content is the content that appears in the **VIEW CONTENT** screen.



Breadcrumbs illustrating the path to the selected content

When you print a breadcrumb, the EFB Document Browser prints only the current content.

To print breadcrumbs:

1. Open the content to print.
2. Select **SHOW MENU > PRINT and PRINT SECTION**.

The EFB Document Browser prints only the current content.

Printing Selected Content

If the XML document was created in the IXP environment 3.4 or later, the EFB Document browser supports the printing of selected XML content.

To print selected content:

1. View the document in the **VIEW CONTENT** screen.

2. Using your finger, highlight the content to print.
3. Select **SHOW MENU > PRINT** and **PRINT SELECTED**.

Printing Text-Only Content

If your printer is a text-only printer, the only content you can print is XML text. A text-only printer prints no graphics, links, or tables. When you print on a text-only printer, the printer prints all of the text that is contained within the scroll bars on the VIEW CONTENT screen.

To print text-only XML content:

1. View the document in the VIEW CONTENT screen.
2. Select **SHOW MENU > PRINT** and **PRINT SECTION**.
3. If the content spans more than one page, select CONTINUE to print multiple pages.

Printing Graphics Content

If your printer is a graphics printer, you can print text, graphics, links, and tables. When you print on a graphics printer, the printer prints all of the content that is contained within the scroll bars on the VIEW CONTENT screen.

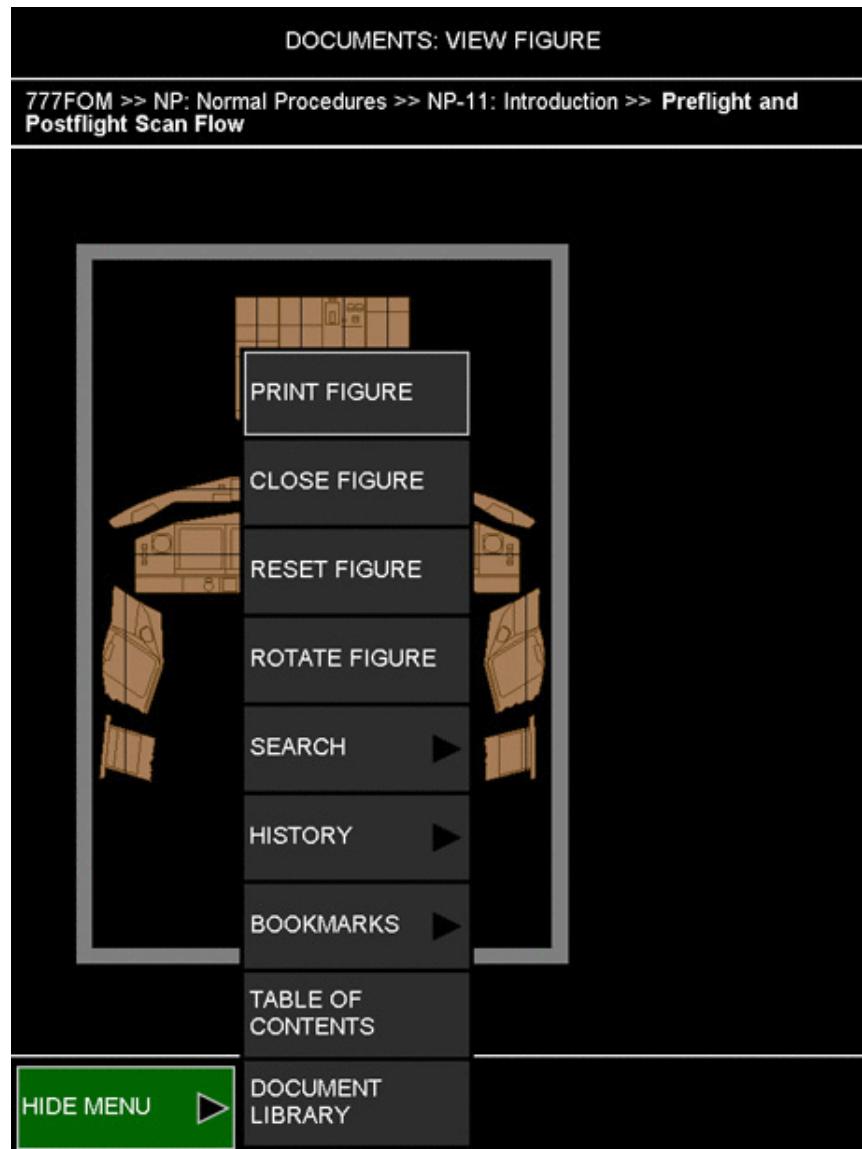
NOTE: If the EFB loses its 429 connection, the EFB Document Browser supports the printing of only XML text.

To print XML content with graphics:

1. View the document in the VIEW CONTENT screen.
2. Select **SHOW MENU > PRINT** and **PRINT SECTION**.
3. If the content spans more than one page, select CONTINUE to print multiple pages.

To print figures:

1. View the figure in the VIEW FIGURE screen.
2. Select **SHOW MENU > PRINT FIGURE**.



Printing a figure from XML content

Printing HTML Content

If you are viewing HTML content, the EFB Document Browser supports the following printing features:

- Selected-content printing.
- Graphics content if the printer is a graphics printer.

To print HTML content, select the appropriate printing option: **PRINT SECTION** or **PRINT SELECTED**.

DOCUMENTS: VIEW CONTENT

SIAMEL >> ANNEX A DISPATCH AUTHORISATION (DA)

ANNEX A DISPATCH AUTHORISATION (DA) (SIN-REGISTERED AIRPLANES ONLY)

1. GENERAL POLICY

1. When an airplane experiences damage or defect AND when the commander may, at his sole discretion, issue a Dispatch Authorisation (DA). This applies to the defect with the Main Landing Gear.
2. A DA may be issued to a Singapore-based aircraft for appropriate rectification of damage or defect:
 - (a) when the damage or defect is minor;
 - (b) when equipment not required for flight is damaged;
 - (c) when the damage or defect is not serious enough to affect flight safety;
 - (d) when damage or defect is not covered in the Maintenance Minimum Limit (MML).
3. It is incumbent on the Commander to ensure that the damage or defect is repaired before the aircraft transits to another station. If the damage or defect is not repairable by the Commander, as in point 2(d), the Commander may, as in point 1, issue a DA.
4. Normally, DA should not be required for flights departing from Singapore.
5. A damage or defect release is issued if it is deemed that the damage or defect is minor and does not require inspection/evaluation by Technical Services. Technical Services shall obtain maintenance release.
6. DA is not required when the aircraft is en route on the damage or defect maintenance check, then the aircraft leaves Singapore. Crew members are responsible for ensuring that the aircraft is fit for flight.

PRINT ➔ PRINT SECTION

DAY MODE PRINT SELECTED

RESET ZOOM FILTER CONTENT

SEARCH HISTORY

BOOKMARKS TABLE OF CONTENTS

HIDE MENU ➔ DOCUMENT LIBRARY

HTML printing options

Printing Selected Content

The EFB Document browser supports the printing of selected HTML content.

To print selected content:

1. View the document in the VIEW CONTENT screen.
2. Using your finger, highlight the content to print.
3. Select **SHOW MENU > PRINT** and **PRINT SELECTED**.

DOCUMENTS: VIEW CONTENT	
SIAMEL >> ANNEX A DISPATCH AUTHORISATION (DA)	
ANNEX A	
DISPATCH AUTHORISATION (DA)	
(SIN-REGISTERED AIRPLANES ONLY)	
1. GENERAL POLICY	<p>1 When an airplane experiences damage or defect, AND when the commanding officer, at his sole discretion, issues a Dispatch Authorisation (DA). This DA is issued to rectify the defect with the Main Cabin crew.</p> <p>2 A DA may be issued to a flight crew member to effect appropriate rectification of:</p> <ul style="list-style-type: none"> (a) when the damage or defect is minor; (b) when equipment not required for flights departures is not covered in the MEL; (c) when the damage or defect is not covered in the MEL being not fully met, or (d) when damage or defect is not covered in the MEL being not fully met, or <p>3. It is incumbent on the Commanding Officer to ensure that damage or defect and to obtain a Dispatch Authorisation (DA) from the transit station for further flights. The Commanding Officer may, as per the DA issued by the transit station, request another DA.</p> <p>4. Normally, DA should not be issued for flights departing Singapore.</p> <p>5. A damage or defect release is issued if it is deemed that the damage or defect does not affect the safety of flight. Inspection/evaluation by Technical Services shall obtain mandatory repair.</p> <p>6. DA is not required when damage or defect is found during maintenance check, then the aircraft leaves Singapore. Crew members</p>
PRINT	PRINT SECTION
DAY MODE	PRINT SELECTED
RESET ZOOM	
FILTER CONTENT	
SEARCH	
HISTORY	
BOOKMARKS	
TABLE OF CONTENTS	
HIDE MENU	DOCUMENT LIBRARY

Printing selected HTML content

Printing Graphics Content

If your printer is a graphics printer, you can print text, graphics, links, and tables. When you print on a graphics printer, the printer prints all of the content that is contained within the scroll bars on the VIEW CONTENT screen.

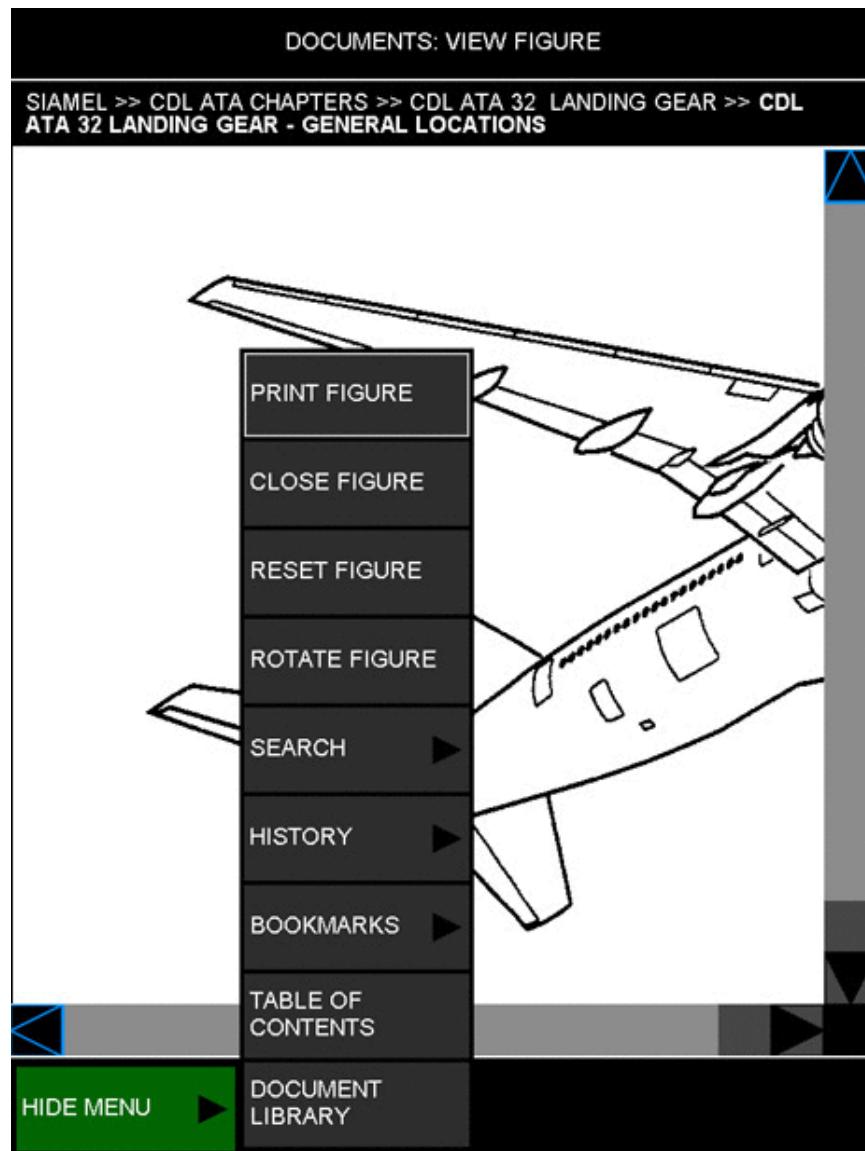
NOTE: If the EFB loses its 429 connection, the EFB Document Browser will not print HTML content.

To print HTML content with graphics:

1. View the document in the **VIEW CONTENT** screen.
 2. Select **SHOW MENU > PRINT** and **PRINT SECTION**.
 3. If the content spans more than one page, select **CONTINUE** to print multiple pages.

To print figures:

1. View the figure in the VIEW FIGURE screen.
2. Select **SHOW MENU > PRINT FIGURE**.



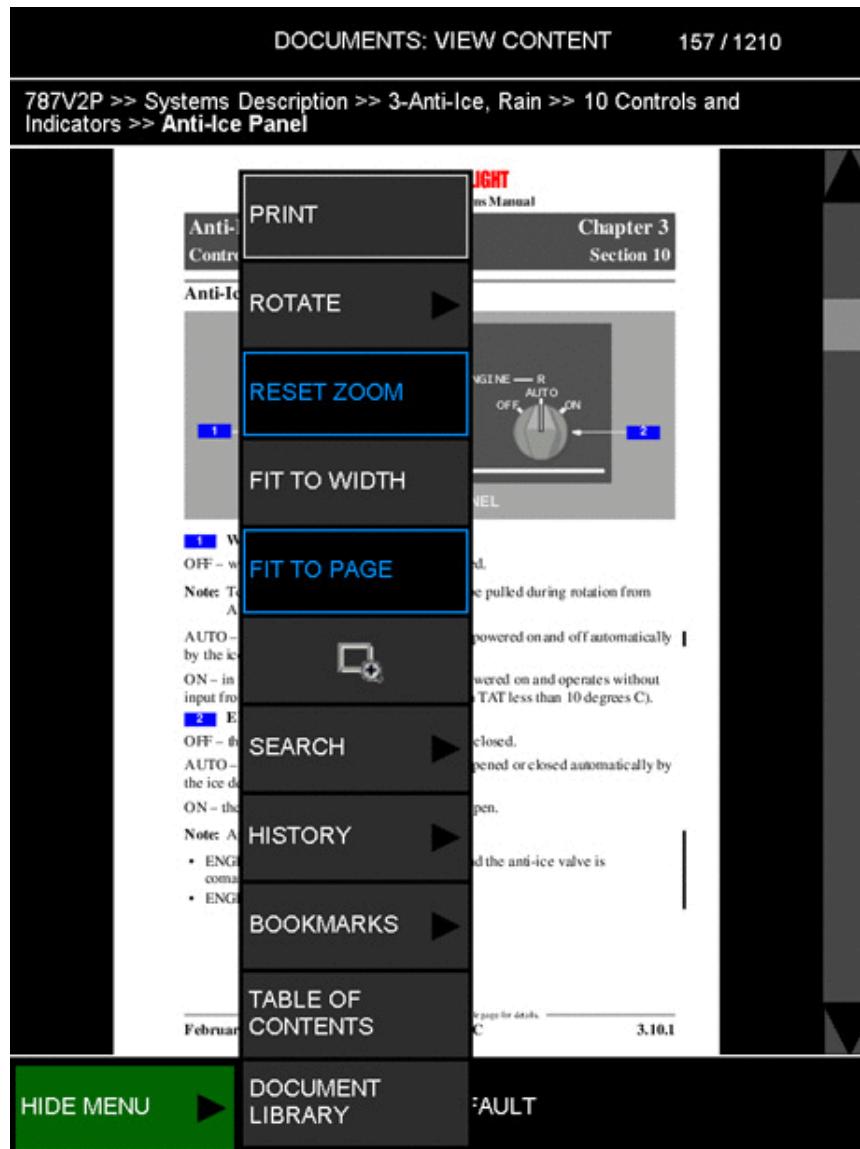
Printing a figure from HTML content

Printing PDF Content

If you are viewing PDF content, the EFB Document Browser supports printing only if the printer is a graphics printer.

NOTE: If the EFB loses its 429 connection, the EFB Document Browser will not print PDF content.

When you print PDF content, the EFB Document Browser prints only the current page. The page numbers appear in the top right corner of the VIEW CONTENT screen.



PDF printing example

To print PDF content:

1. View the content in the VIEW CONTENT screen.
2. Select **SHOW MENU > PRINT**.

Troubleshooting

The EFB Document Browser application might display the following memos:

- **DOCUMENT EFFECTIVITY OVERLAP**—This memo indicates that the effectivity date ranges of one or more revisions of a document are overlapping. You will need to select the appropriate document for your flight. If you are not sure which revision is current, contact your system administrator.
- **The Following Document(s) Are Out of Date**—This memo indicates that one or more revisions of a document has exceeded its effectivity date range. Select **CONTINUE** to use a document regardless of its effectivity.
- **TAIL ID UNAVAILABLE**—During application startup, the EFB Document Browser application obtains the

aircraft's tail identification (TAIL ID) from the EFB. This memo indicates that the TAIL ID is not available and tail-filtering functionality for XML documents will be unavailable for the remainder of the flight.

- DOCUMENT FAILED TO PRINT—This memo indicates that a printing error occurred. Select **CONTINUE** to acknowledge the error and return to the VIEW CONTENT screen.
- CONTENT FAILED TO LOAD—This memo indicates that an error occurred and the EFB Document Browser is unable to display the content on the EFB. Select **RETURN** to acknowledge the error and return to the VIEW CONTENT screen.

The EFB Document Browser application might send the following maintenance or system faults to the EFB:

- TAIL ID MISMATCH—This fault indicates that the valid TAIL ID that is currently installed on the EFB does not match the EFB Document Browser document Tail ID.
- DOCUMENTS ADCC CONFIG ERROR—The EFB Document Browser generates this fault when the EFB is unable to obtain the correct directory path/filename pointers to the EFB Document Browser.
- DOCUMENTS MISSING FILE—This fault indicates that an error has occurred that prevents the EFB Document Browser from displaying the content of the selected document. This fault can occur during view or preview when the EFB Document Browser cannot find the document section or a document.
- DOCUMENTS MISSING CFG UMS LSAP—This fault indicates that the EFB Document Browser application configuration file is missing. This message is sent during application startup.
- DOCUMENTS INVALID LIBRARY—This fault indicates that an application configuration file was not built correctly.
- DOCUMENTS TAIL ID UNAVAILABLE—This fault indicates that the EFB Document Browser application was unable to obtain the aircraft's TAIL ID from the EFB. Tail-filtering functionality for XML documents will be unavailable for the remainder of the flight.
- DOCUMENT EXCEPTION —This fault indicates that the EFB Document Browser has encountered an internal error. The application continues to operate, but the last operation might not have completed successfully.

For additional troubleshooting information, refer to the Boeing *Class 3 Electronic Flight Bag (EFB) 737 - 777 Fault Isolation Manual* (document number D6-84081-4601-EFBC3). Follow your organization's procedures for addressing faults.



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EFB PILOT UTILITIES

Use the EFB Pilot Utilities application to perform basic mathematical conversions. This application operates on the Boeing Class 1, Class 2, and Class 3 EFB.

Pilots use the EFB Pilot Utilities application to perform the following tasks:

- Calculate values using the application calculator
- Count time up or down using the application stopwatch
- Perform unit conversions for speed, length, weight, volume, and temperature
- Perform time zone conversions

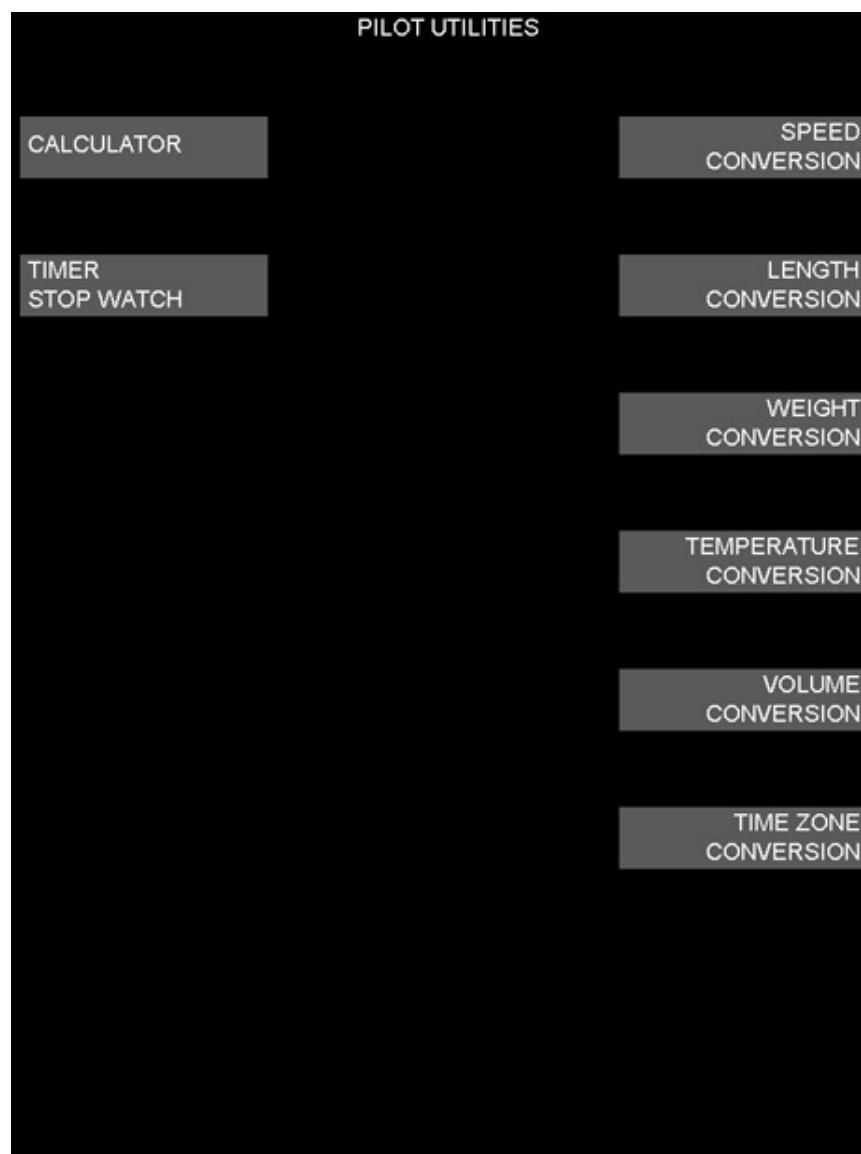
Using the EFB Pilot Utilities Application

The EFB Pilot Utilities application exhibits the following standard EFB behavior:

- To launch the application, select the application button on the MAIN MENU screen. Your organization defines the text of the button label.
- To exit the application, select the **MENU** bezel button to return to the MAIN MENU screen.
- To view system messages (indicated by MEMO or MSG notifications), select the application button on the MAIN MENU screen. The application displays the appropriate message.
Follow the on-screen instructions to acknowledge or resolve each MEMO notification.
- To view application faults, open the SYSTEM FAULT LOG screen.

Using the Pilot Utilities

To access the conversion tools in the EFB Pilot Utilities application, select the Pilot Utilities application button on the MAIN MENU screen and display the main EFB Pilot Utilities menu.



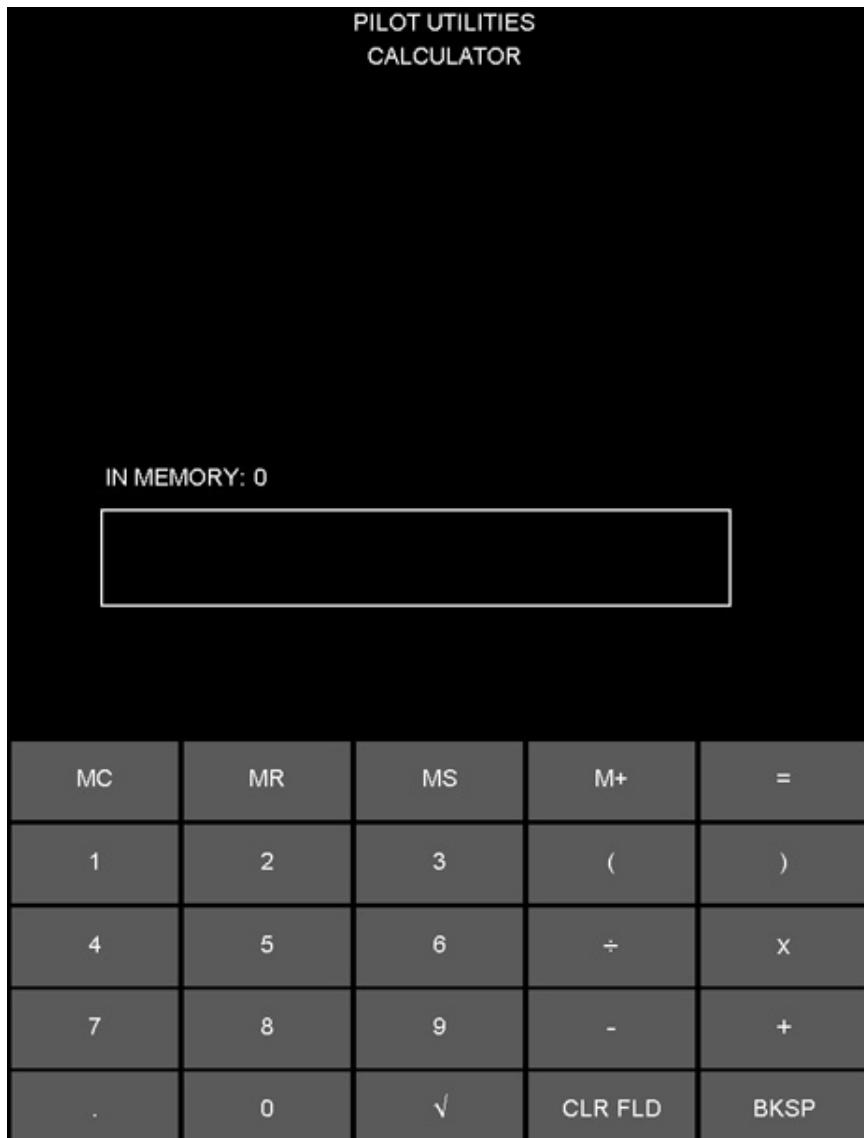
EFB Pilot Utilities menu

From the EFB Pilot Utilities menu, select a button to access the associated tool:

- Calculator
- Stopwatch
- Speed conversion
- Length conversion
- Weight conversion
- Temperature conversion
- Volume conversion
- Time zone conversion

Using the Calculator

To access the calculator from the EFB Pilot Utilities menu, select the button for the calculator tool.



Calculator tool

The calculator contains basic mathematical features, such as features for multiplying, dividing, adding, and subtracting values and determining square roots. In addition, the calculator contains buttons for memory-related features.

To clear the entries at any time, select the **CLR FLD** button in the virtual keyboard.

To perform calculations:

1. Enter the calculation.
2. Select the equals (=) sign.

To store values or results in memory and work with the stored data:

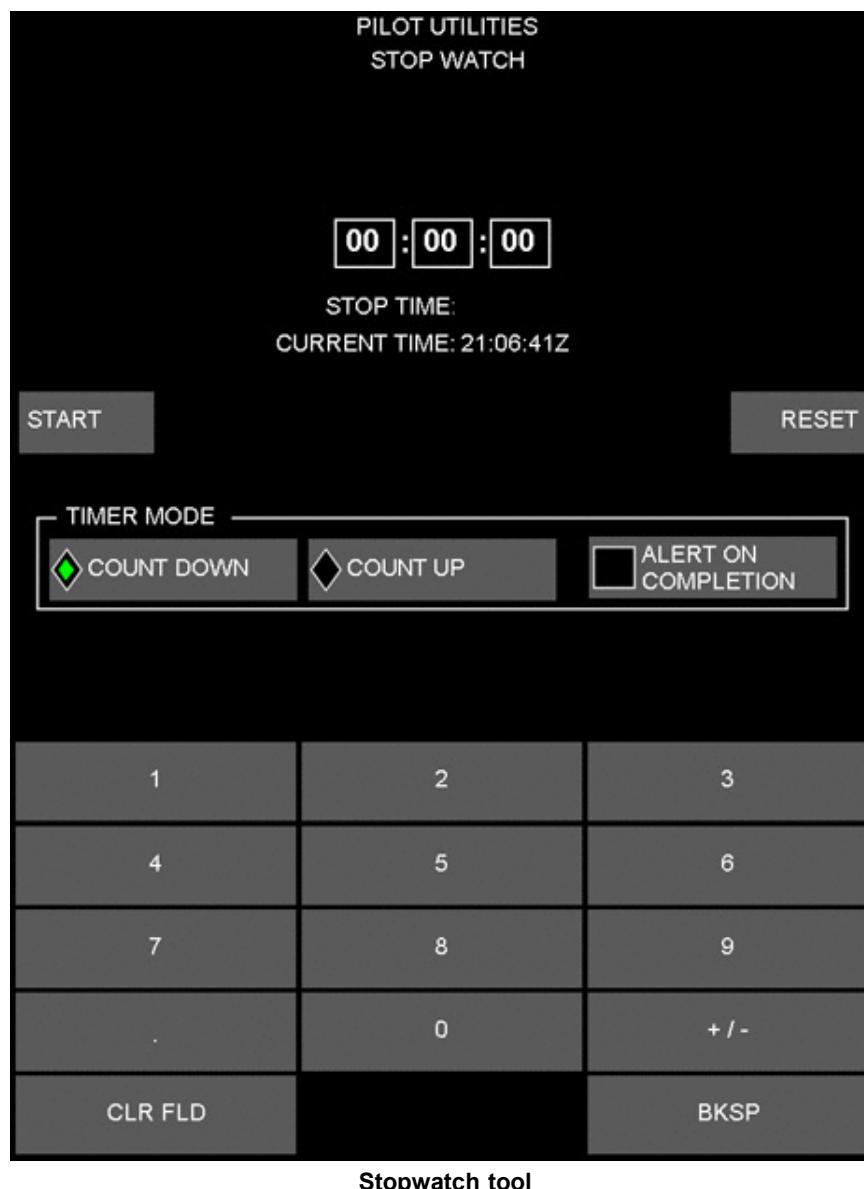
- Select **MC** to clear the calculator's memory.
- Select **MR** to recall a calculated result or a value from the calculator's memory.
- Select **MS** to store a calculated result in memory.

- Select **M+** to add a value to the calculator's memory.

For example, you might add a value to memory (M+) if you need to use it repeatedly in calculations. After you add it to memory, you can recall it (MR) for each subsequent calculation. You can do the same thing with the result of a calculation that you need to use repeatedly. Perform the calculation and add it to memory (MS). When you no longer need the item in memory, clear the memory (MC).

Using the Stopwatch

To access the stopwatch from the EFB Pilot Utilities menu, select the button for the stopwatch tool.



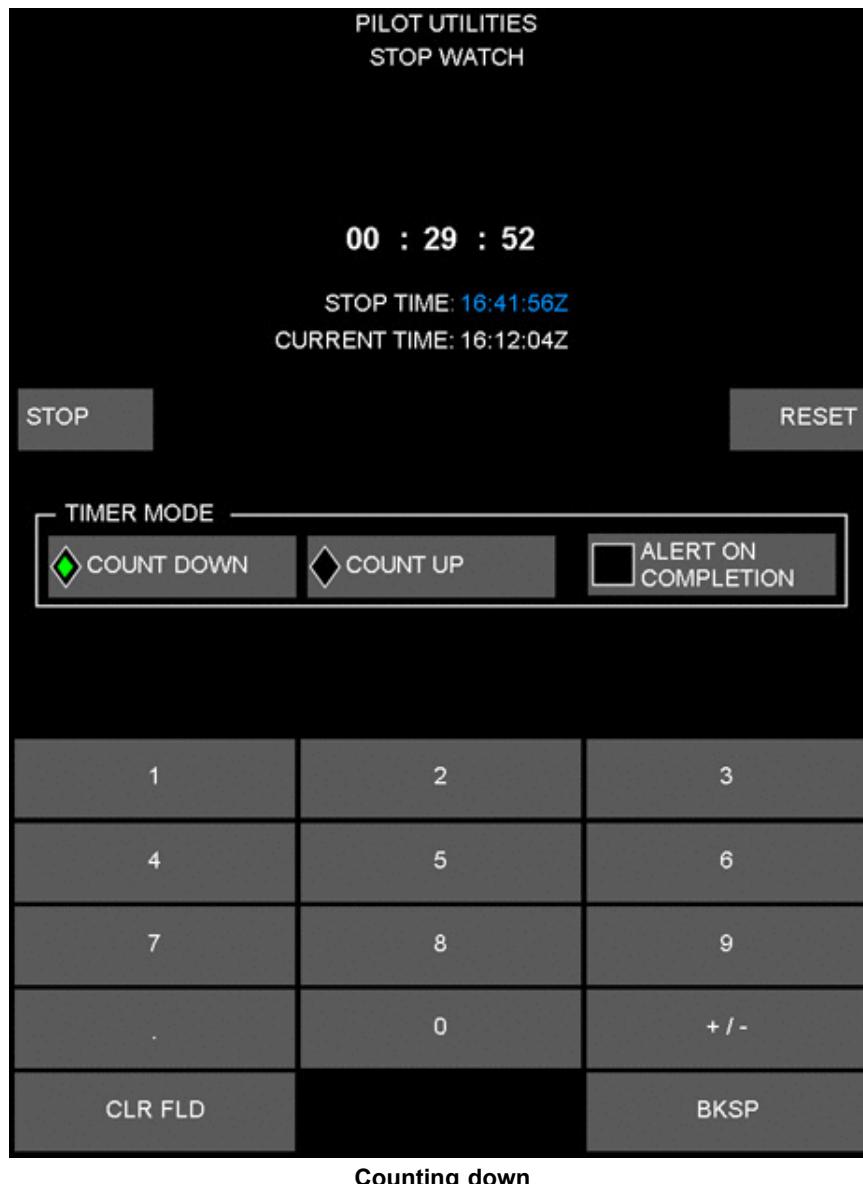
Use the stopwatch tool to count time up or down. The application measures time in the following format:
hh:mm:ss

To stop the stopwatch at any point, select **STOP**. To reset the values, select **RESET**.

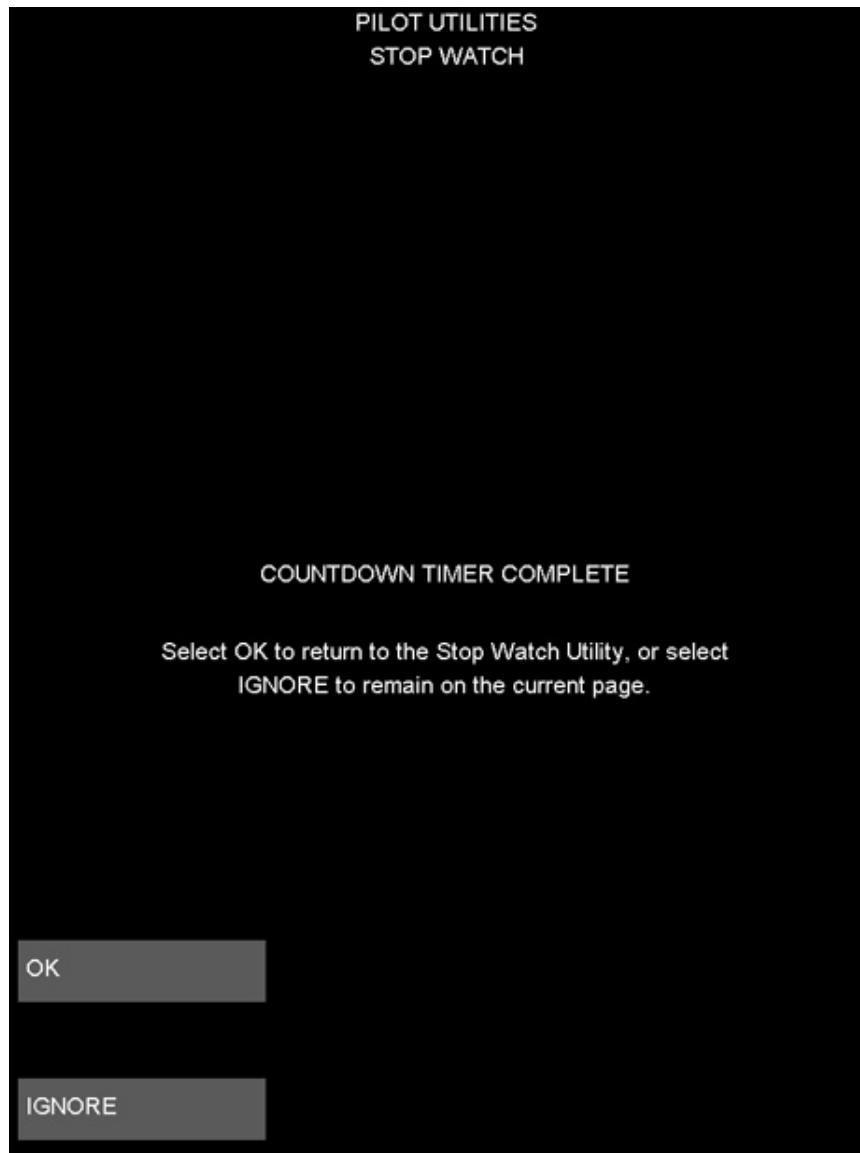
To count down:

1. Select **COUNT DOWN**.
2. In the stopwatch timer fields, enter the amount of time to count down.
3. To set the application to alert you when it has completed the countdown, check **ALERT ON COMPLETION**.
4. Select **START**.

The application carries out the countdown. Both the time at which the timer will reach zero (stop time) and the current time appear below the timer fields.



If you set the application to notify upon completion of the countdown, it displays a notification when the timer reaches zero.



Notification that countdown is complete

Select **OK** to return to the stopwatch tool. Select **IGNORE** to return to the screen you were on before the notification appeared.

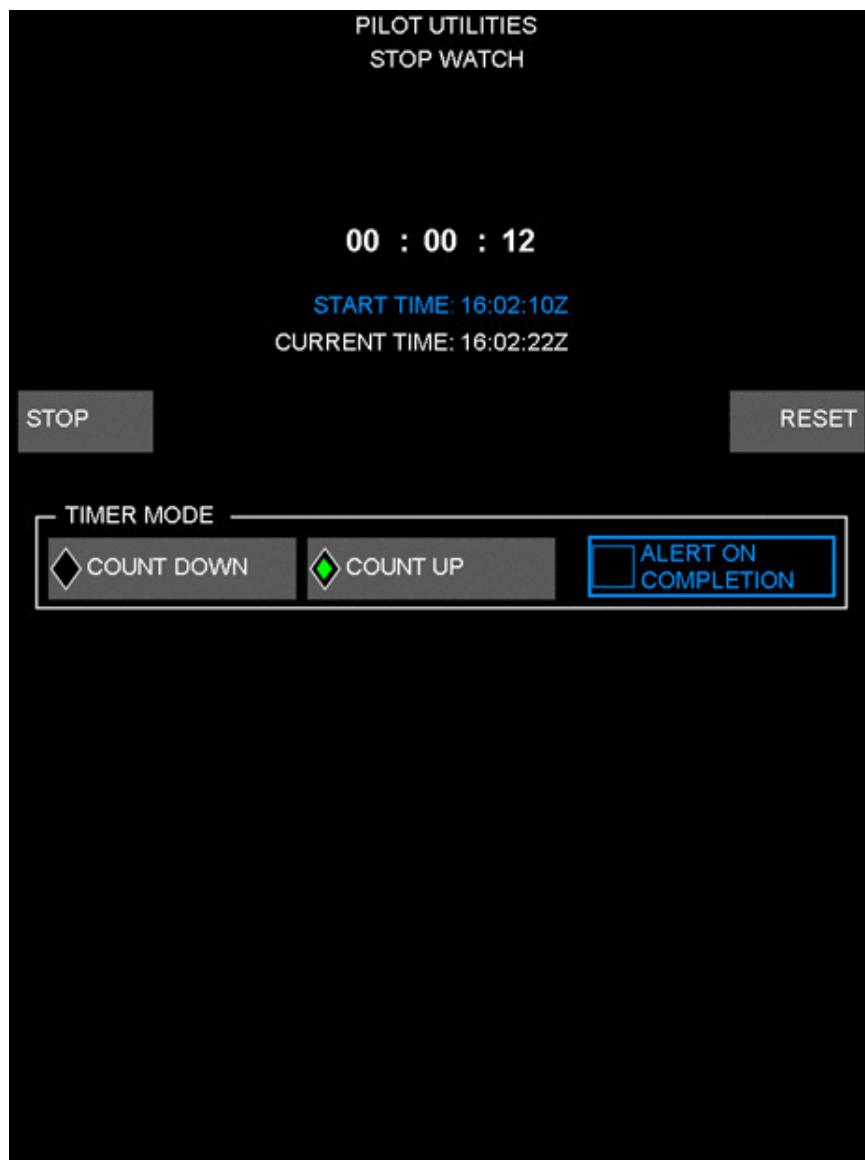
If you are using another application when the countdown is complete, the Pilot Utilities application displays a MEMO notification.

To count up:

1. Select **COUNT UP**.
2. Select **START**.

The application displays the time you started the stopwatch and the current time below the timer fields.

The application continues to count up until you stop it.



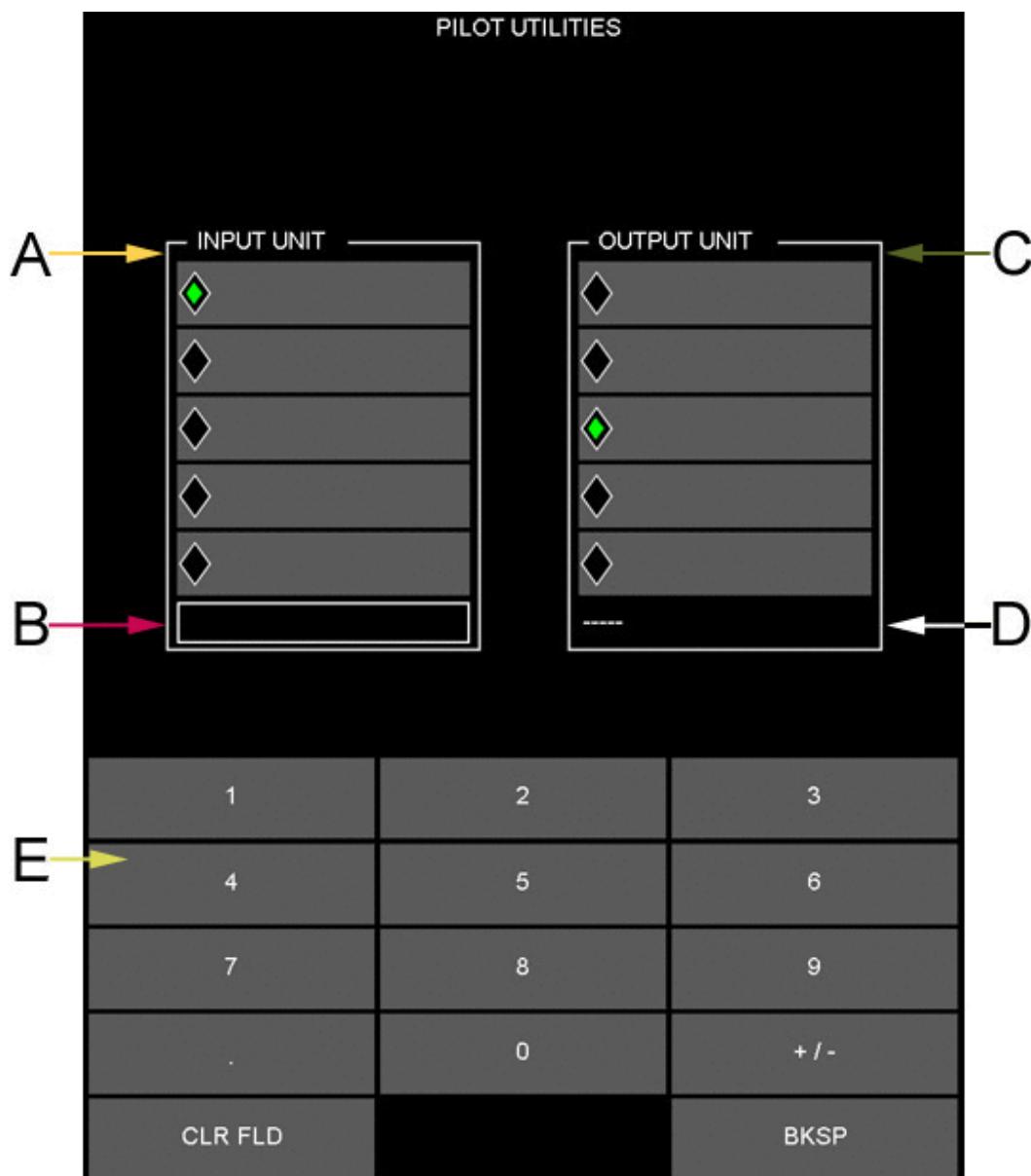
Counting up

3. To end, select **STOP**.

Converting Units

Use the EFB Pilot Utilities application to convert units of speed, length, weight, temperature, and volume.

Although the conversion tools enable conversions of different unit types, the design of the user interface is similar for each tool.



Basic user interface of unit conversion tools

The following table describes the user interface elements in the conversion tools:

Conversion Tools User Interface Elements

Callout	Description
A	Input units
B	Input field NOTE: You can enter up to three digits in this field.
C	Output units
D	Conversion results field
E	Virtual keyboard

To clear the entries at any time, select the **CLR FLD** button in the virtual keyboard.

Converting Units of Speed

Use the speed conversion tool to convert speed to and from feet per minute, kilometers per hour, knots, meters per second, and miles per hour.



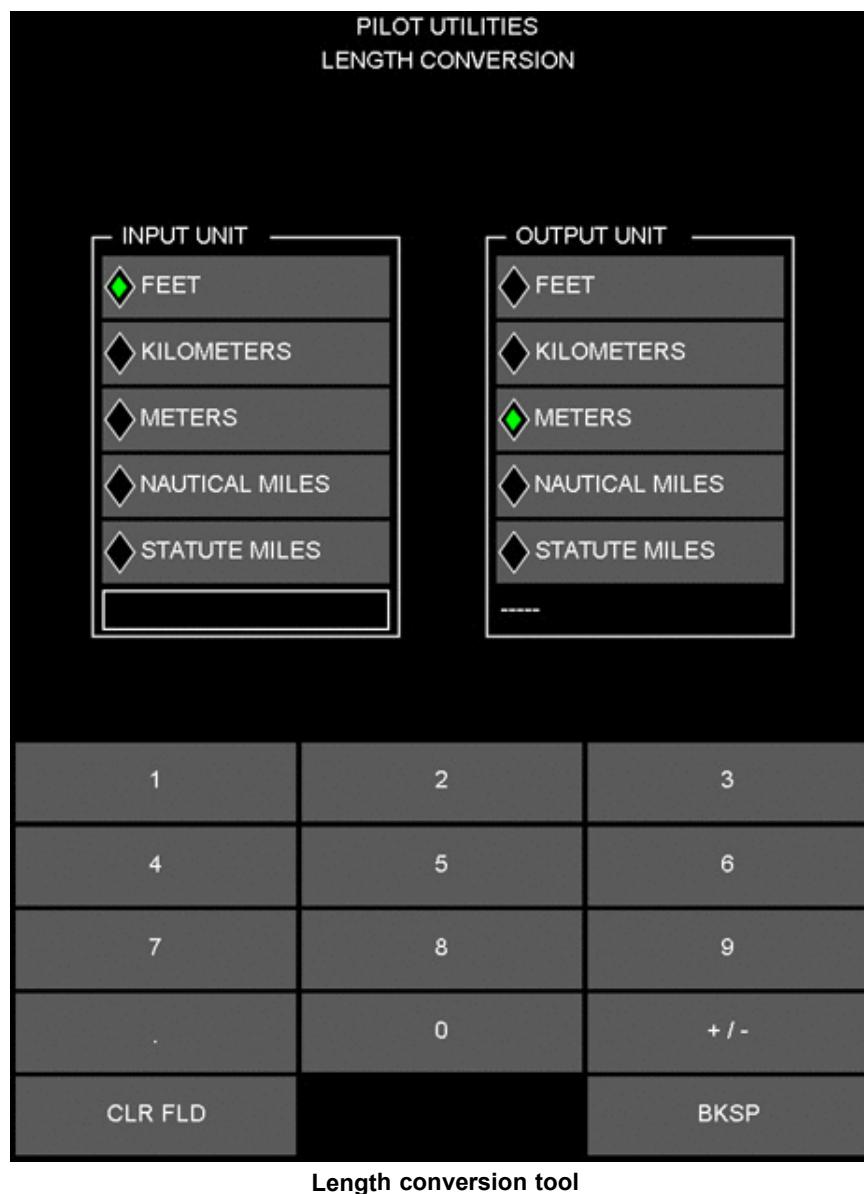
To convert units of speed:

1. Select the button for the speed conversion tool.
2. Select the INPUT UNIT.
3. Select the OUTPUT UNIT.
4. In the input field, enter the number of units to convert.

The application displays the conversion in the conversion results field.

Converting Units of Length

Use the length conversion tool to convert length to and from feet, kilometers, meters, nautical miles, and statute miles.



To convert units of length:

1. Select the button for the length conversion tool.
2. Select the INPUT UNIT.
3. Select the OUTPUT UNIT.
4. In the input field, enter the number of units to convert.

The application displays the conversion in the conversion results field.

Converting Units of Weight

Use the weight conversion tool to convert weight to and from kilograms and pounds.



Weight conversion tool

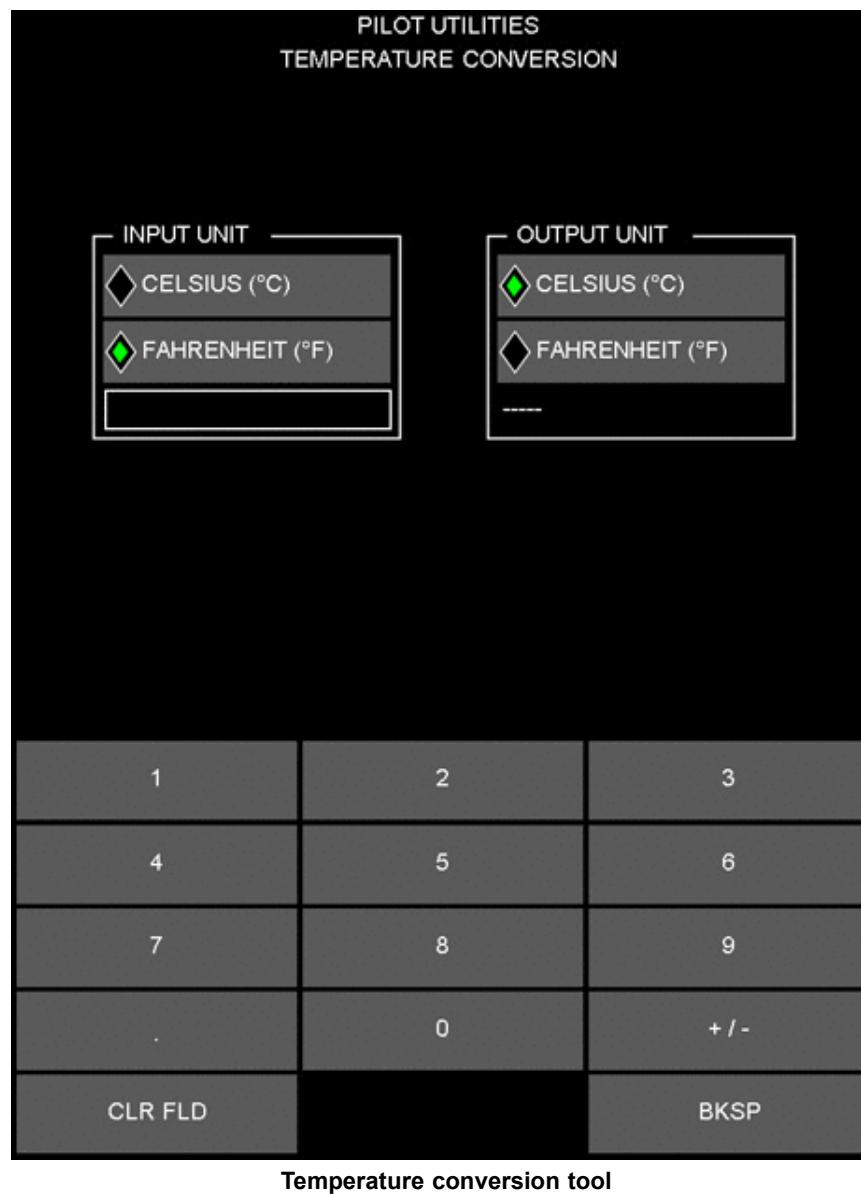
To convert units of weight:

1. Select the button for the weight conversion tool.
2. Select the INPUT UNIT.
3. Select the OUTPUT UNIT.
4. In the input field, enter the number of units to convert.

The application displays the conversion in the conversion results field.

Converting Units of Temperature

Use the temperature conversion tool to convert temperature to and from Celsius and Fahrenheit.



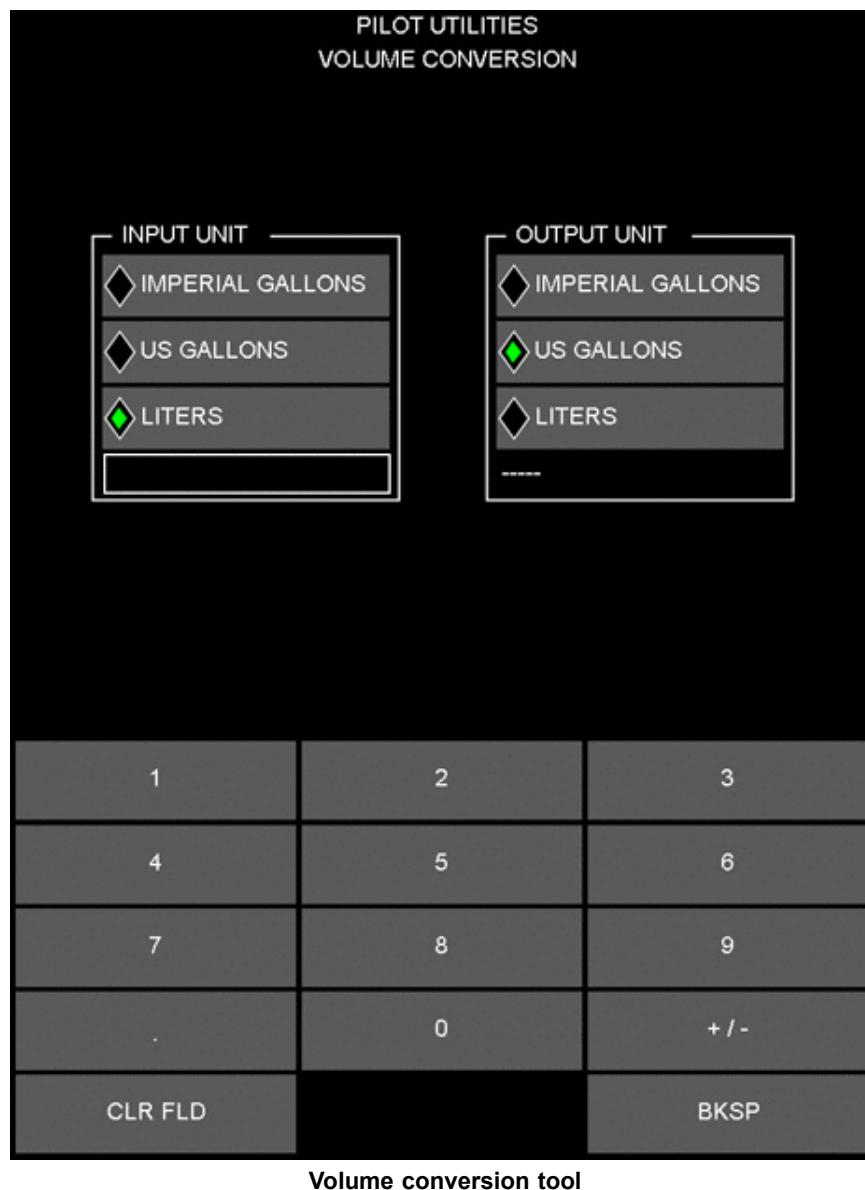
To convert units of temperature:

1. Select the button for the temperature conversion tool.
2. Select the INPUT UNIT.
3. Select the OUTPUT UNIT.
4. In the input field, enter the number of units to convert.

The application displays the conversion in the conversion results field.

Converting Units of Volume

Use the volume conversion tool to convert volume to and from imperial gallons, U.S. gallons, and liters.



To convert units of volume:

1. Select the button for the volume conversion tool.
2. Select the INPUT UNIT.
3. Select the OUTPUT UNIT.
4. In the input field, enter the number of units to convert.

The application displays the conversion in the conversion results field.

Using the Time Zone Converter

Use the time zone converter to convert a Zulu time value into a time in another time zone.

PILOT UTILITIES
TIME ZONE CONVERSION

INPUT TIME	
16	25
HH:MMZ	

CURRENT DATE/TIME: MAY03/11 16:25:27Z

OUTPUT TIME	
16:25 HH:MM	<input type="checkbox"/> ADJUST TIME FOR DAYLIGHT
(UTC) Coordinated Universal Time	
CURRENT CONVERTED TI... 16:25	

RESET ALL

1	2	3
4	5	6
7	8	9
.	0	+ / -
CLR FLD	BKSP	

Time zone conversion tool

To clear the entries at any time, select the **CLR FLD** button in the virtual keyboard. To reset the values, select **RESET**.

To convert time zones:

1. Select the button for the time zone conversion tool.
2. In the INPUT TIME fields, enter the Zulu time in the following format: HH:MM.

In the OUTPUT TIME field, the application displays the Zulu time that it will convert.

3. To adjust for daylight saving time, check ADJUST TIME FOR DAYLIGHT.

If you check this box, the application adjusts the time in the OUTPUT TIME field to account for daylight saving time.

NOTE: You must know which regions recognize daylight saving time. The Pilot Utilities application is not configured with that information.

4. From the drop-down menu, select the time type to convert to.

The application displays the conversion in the CURRENT CONVERTED TIME field.



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DATA LOAD

The Boeing Data Load application is a pilot utility that enables one-touch loading of Application Data Enhanced Load (ADEL)-eligible application data directly from the flight deck without maintenance intervention. This application runs on the Boeing Class 2 and Class 3 EFB. The DATA LOAD button does not appear on the Boeing Class 1 EFB.

Pilots use the Data Load application to load ADEL-eligible data for Airport Moving Map (AMM), Terminal Charts, the Onboard Performance Tool (OPT), and the EFB Document Browser (EDB). The data loading process updates only the applications that have been installed on your system.

Your airline defines the process for loading data to your airplane and must configure your EFB to support ADEL before you can use the Data Load application.

Using the Data Load Application

The Data Load application exhibits the following standard EFB behavior:

- To launch the application, select the DATA LOAD button on the MAIN MENU screen. The label and position of this button is controlled by Boeing and is not configurable.
- To exit the application, select the **MENU** bezel button to return to the MAIN MENU screen.
- To view system messages (indicated by MEMO or MSG notifications), select the application button on the MAIN MENU screen. The application displays the appropriate message.

In the case of the Data Load application, a MEMO notification indicates that data is available to load. See the "Understanding Data Availability" section for more information.

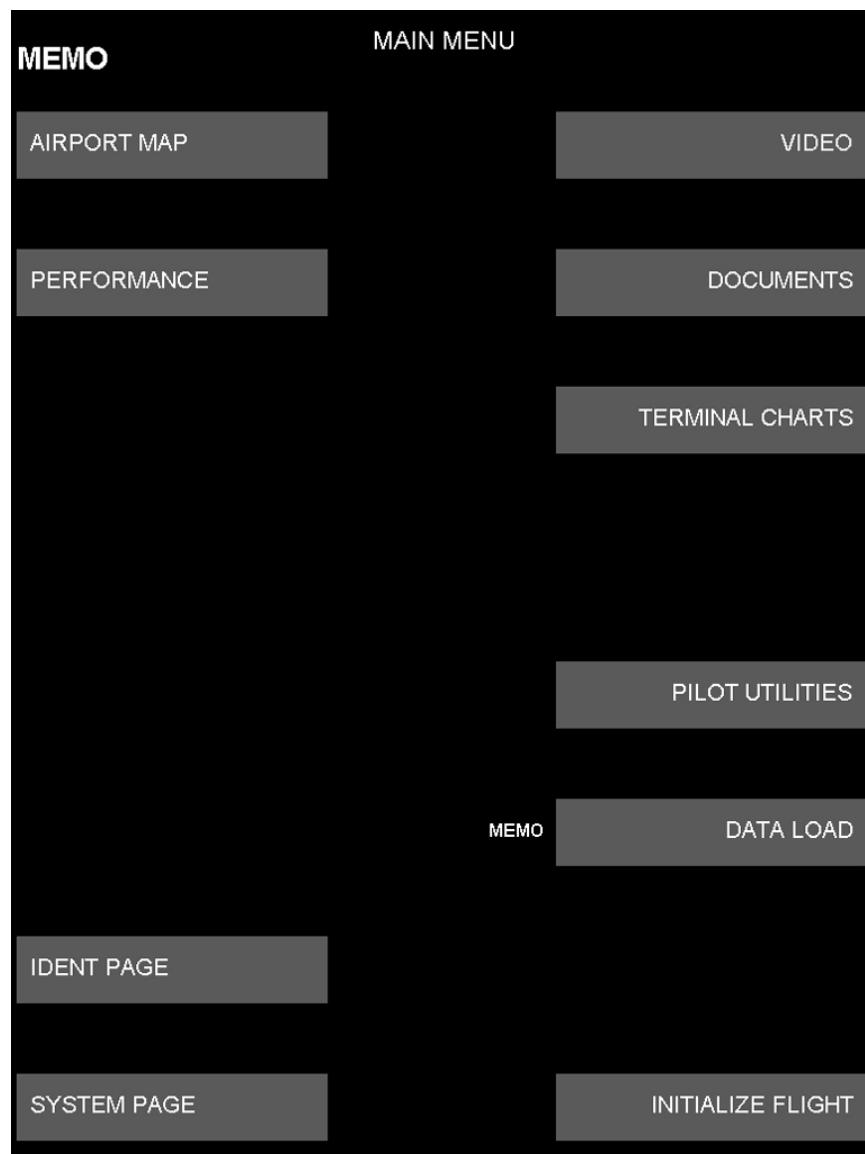
- To view application faults, open the SYSTEM FAULT LOG screen.

For more information about standard EFB behavior, see the "Using the EFB" chapter.

Understanding Data Availability

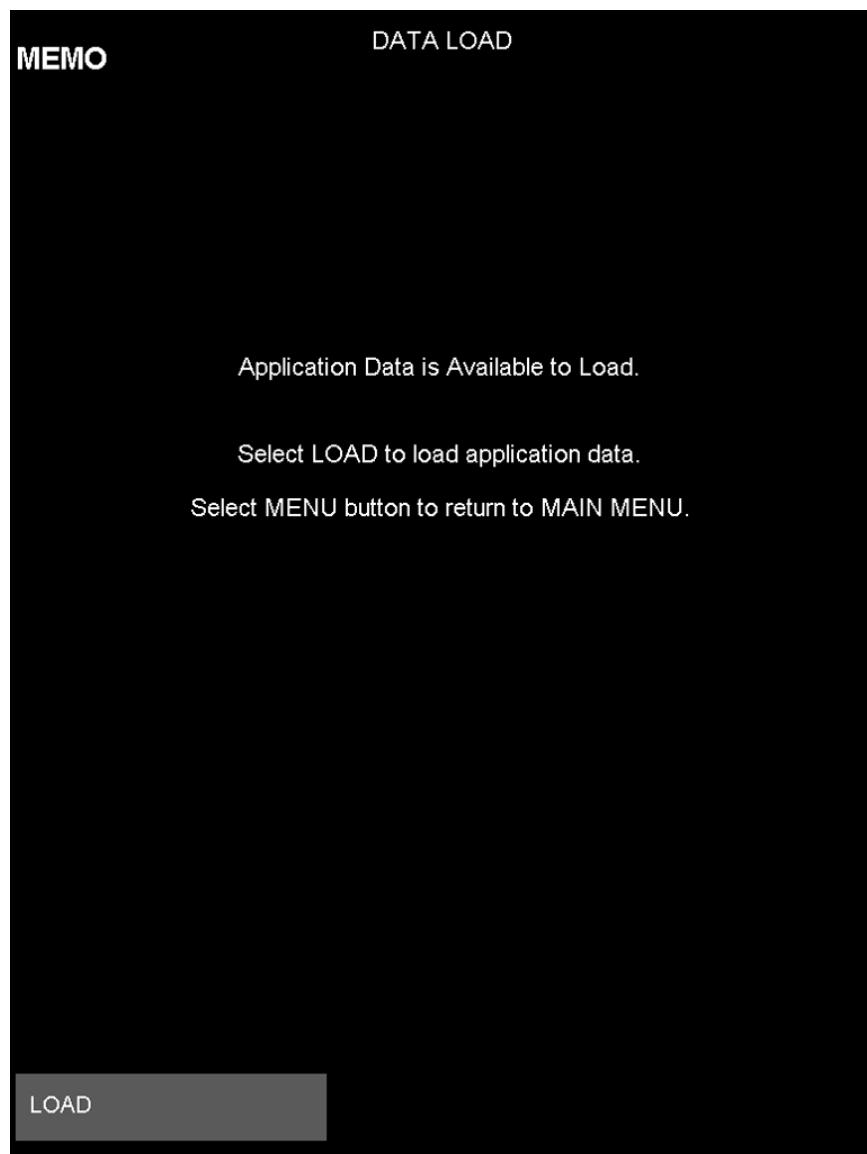
Perform data load functions between flight close and flight initialization. After flight initialization, the application will not load data.

When data is available for loading, the Data Load application displays a MEMO notification next to the DATA LOAD button on the MAIN MENU screen.

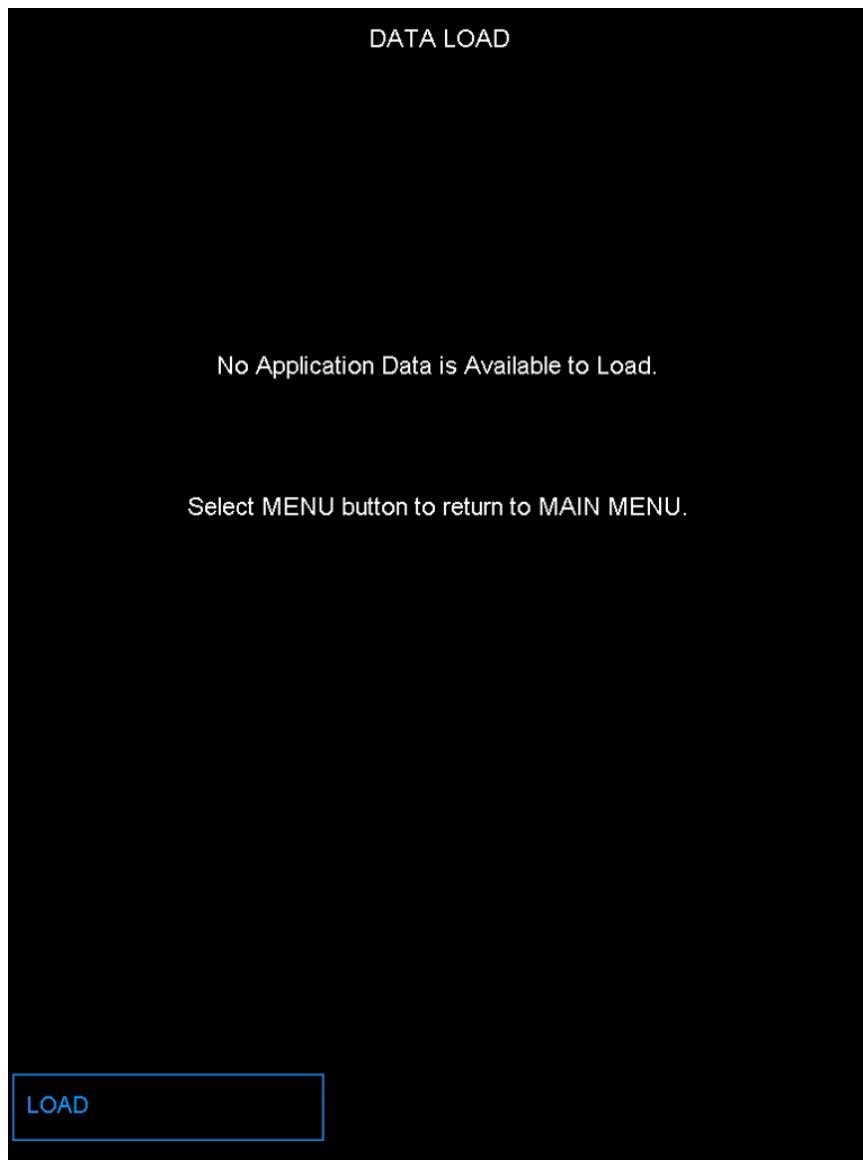


DATA LOAD button with a MEMO notification

When you select the DATA LOAD button, the LOAD button is gray, indicating that it is enabled because data is available for loading.



If you select the DATA LOAD button when no data is available, the **LOAD** button is disabled.



LOAD button is disabled

Select the **MENU** bezel button to return to the MAIN MENU screen.

If you select the DATA LOAD button after the flight has been initialized, the LOAD button is disabled just as it is when no data is available for loading. Select the **MENU** bezel button to return to the MAIN MENU screen.

Loading Data onto the EFB

Before flight initialization, the EFB notifies the Data Load application when new data is available for loading. When data is available, the Data Load application displays a MEMO notification in the top corner of the MAIN MENU screen and next to the DATA LOAD button. If you do not load the data at this time and opt to initialize the flight, the data will be available again after flight close.

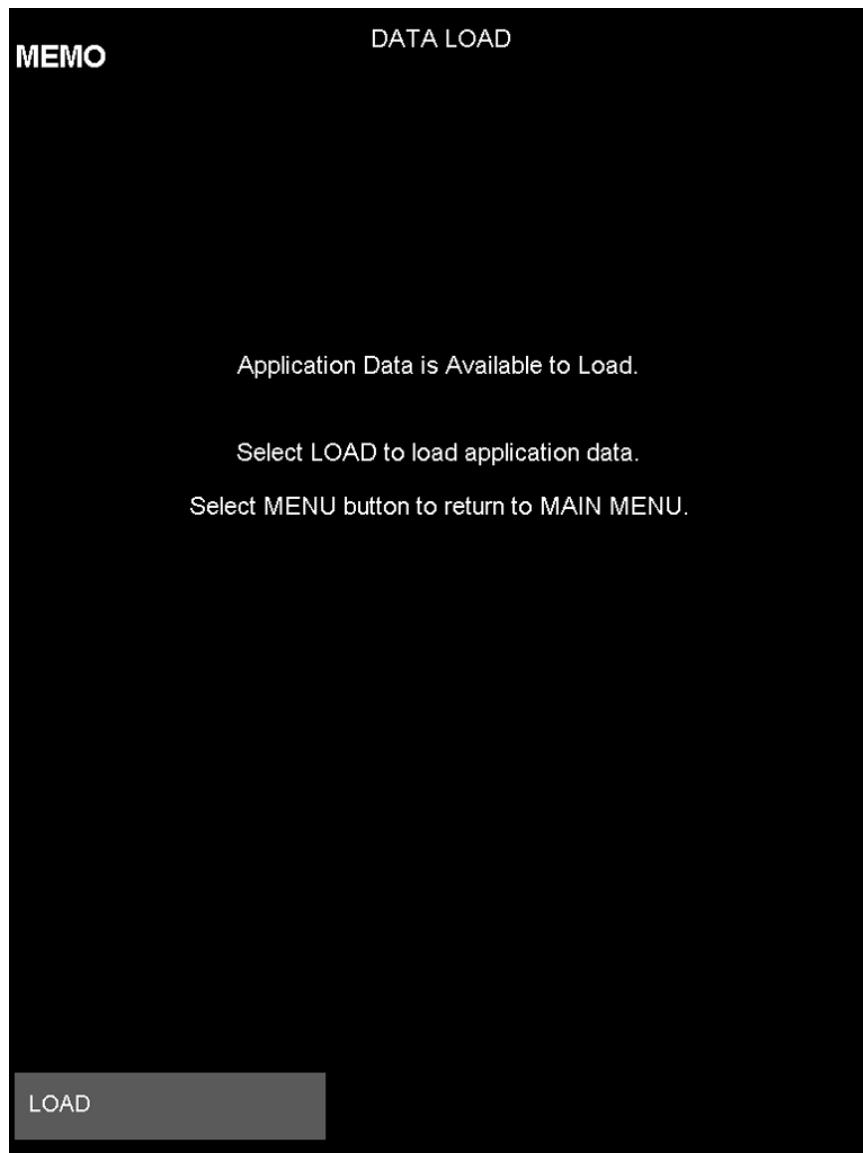
Typical data load time is less than one minute.

NOTE: The data load operation occurs independently on each EFB. Loading data onto your EFB does not automatically sync the data on the other EFB; rather, this operation must be performed on both the left and right EFB for both EFBs to be using the new data. It is extremely important that your organization follows a systematic process for coordinating the data loading on both EFBs.

To load data:

1. From the MAIN MENU screen, select the **DATA LOAD** button.

The application displays a notification that data is available for loading, and the LOAD button is enabled.

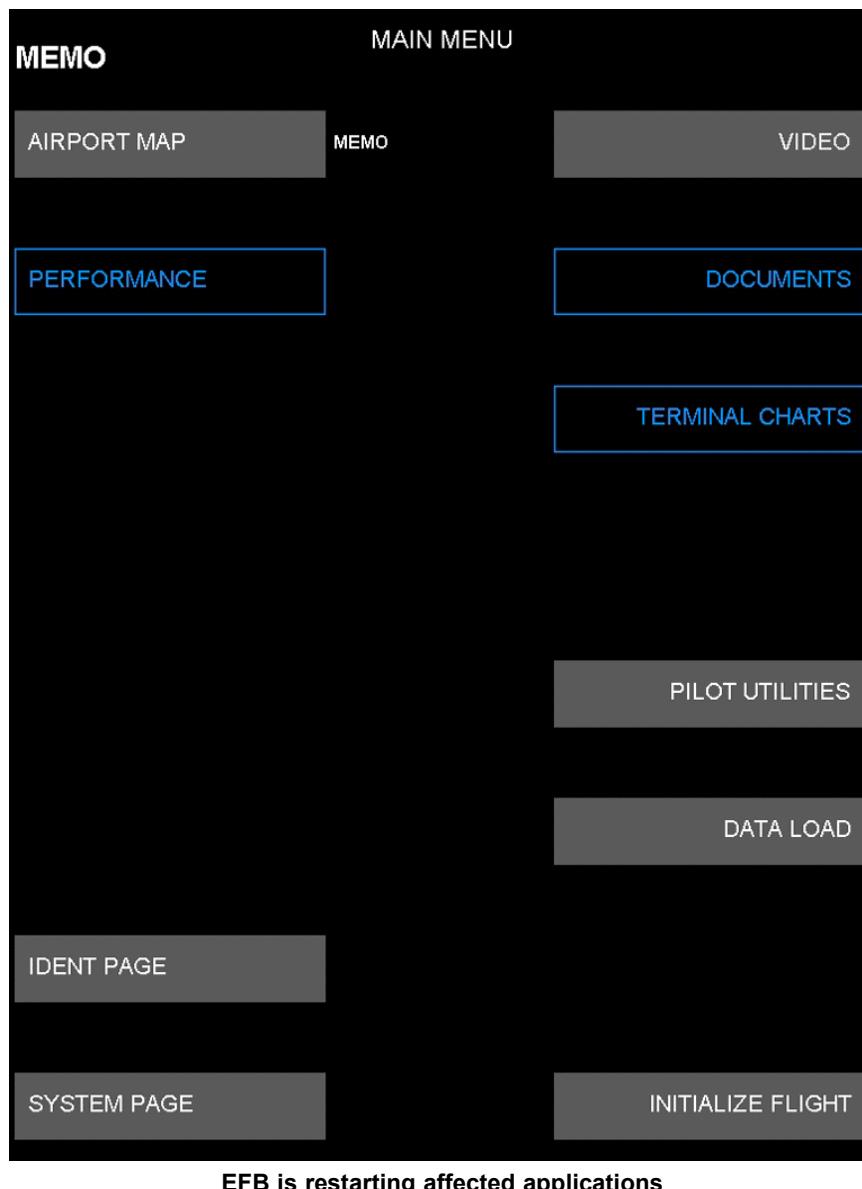


Data is available for loading

2. Select **LOAD**.

Because the Data Load application can load parts for the AMM, Terminal Charts, OPT, and EDB applications, it shuts down all four of these applications while it loads the new data. After the Data Load application loads the data, the LOAD button displays a COMPLETE notification, the MEMO notification

disappears, and the EFB restarts the applications. The application buttons are outlined in blue during the data load and restarting processes. The buttons turn gray after the applications have restarted.



Ensuring that Data Loaded

To verify from the DATA LOAD screen that parts have loaded:

1. Confirm that the status on the LOAD button reads “COMPLETE”.
2. Return to the MAIN MENU and confirm that the MEMO notification next to the DATA LOAD button no longer appears.
3. Confirm that the buttons for all ADEL-eligible applications are gray, indicating that the applications have restarted.

Troubleshooting

The Data Load application might display the following notification:

- Error—If you see an error notification on the DATA LOAD button, wait until the button turns gray and then press it again.



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ELECTRONIC FLIGHT FOLDER

The Boeing Electronic Flight Folder (EFF) application is an electronic flight-briefing package that replaces day-of-flight paper documentation. Organizations use this comprehensive package to transmit day-of-flight data from ground systems to the airborne Electronic Flight Bag (EFB) so that pilots have real-time access to all information related to the flight plan. Pilots can enter data in specific areas of the flight plan and acquire last-minute updates and revisions. This application operates on the Boeing Class 1, Class 2, and Class 3 EFB.

When the EFB is connected to an avionics bus, the EFF application imports some types of aircraft data to record flight progress. This aircraft data can include takeoff and landing times collected from weight-on-wheels (WOW) data and time and fuel information gathered from specified waypoints along the route. When appropriate, pilots can modify specific types of flight-progress data directly on the EFB.

The contents of the flight folder depend on the contents of the flight plan. Flight folders can include flight plan, weather, Notice to Airmen (NOTAM), loadsheet, and Notification to Captain (NOTOC) information. EFF can also contain one topic of your organization's choice. EFF assists flight crews from briefing through post-flight operations, which streamlines current operational practices and reduces pilot workload.

On connected EFBs, the EFF synchronization function ensures that both pilots are working with the same data at all times. If both pilots enter data on the same screen, EFF records the data with the most current time stamp.

Your organization defines the process for uploading flight folders to your aircraft. In addition, your organization defines the interaction between EFF and the other EFB applications on your system.

The EFF data structure is standardized based on ARINC 633 parameters.

NOTE: All examples in this document are for illustration purposes and represent only one potential layout for EFF. Your organization configures your specific layout.

Using the EFF Application

The EFF application exhibits the following standard EFB behavior:

- To launch the application, select the application button on the MAIN MENU. Your organization defines the text of the button label.
- To exit the application, select the **MENU** bezel button. The application displays the MAIN MENU.
- To view system messages (indicated by MEMO or MSG notifications), select the application button on the MAIN MENU. The application displays the appropriate message.

Follow the on-screen instructions to acknowledge or resolve each MEMO notification.

- To view application faults, open the SYSTEM FAULT LOG page. The application also displays some on-screen fault notifications during flight under certain conditions. For more information, see the "Troubleshooting" section.

For more information about standard EFB behavior, see the "Using the EFB" chapter.

EFF exhibits the following standard behavior that is specific to the EFF application:

- To close a flight folder, close the flight from the MAIN MENU. When you close a flight, EFF discards any unsaved data, marks the folder as CLOSED, and sends the data to ground.

NOTE: When both EFBs perform the CLOSE FLIGHT action, EFF sends the closed flight folder with the most current update time stamp to ground. If the two EFBs are not in communication with each other, EFF sends the closed flight folder from each EFB to ground, and ground personnel follow established procedures to resolve the duplicated flight folder data.

- To disable or enable the virtual keyboard from the EFF – HOME page, select **SHOW MENU > DISABLE KYBD** or **SHOW MENU > ENABLE KYBD**. Your organization might have disabled your virtual keyboard by default, and enabling the keyboard here overrides that setting. When you disable or enable the keyboard in EFF, the new settings affect only the EFF application; they do not disable or enable the keyboard setting in other EFB applications. When the keyboard is enabled, EFF displays the virtual keyboard whenever you select an option that requires text entry. When EFF displays the keyboard, the keyboard scrolls up slowly from the bottom of the page. The content you are editing also scrolls up so that it remains visible, and EFF displays a scroll bar, which enables you to scroll the contents of the page above the virtual keyboard.
 - To view available menu options, select **SHOW MENU**. When you do so, all available menu options appear in a cascading menu to the right of the button, and the button label changes to **HIDE MENU**. Select **HIDE MENU** to hide the menu options.
-

NOTE: A menu option might be available and disabled, depending on the state of the EFF data.

- EFF displays a MEMO notification when ground personnel issue updates to a flight folder. Select **OK** to acknowledge the MEMO notification.
- EFF displays labels in gray font and content in white. The following figure illustrates this format.

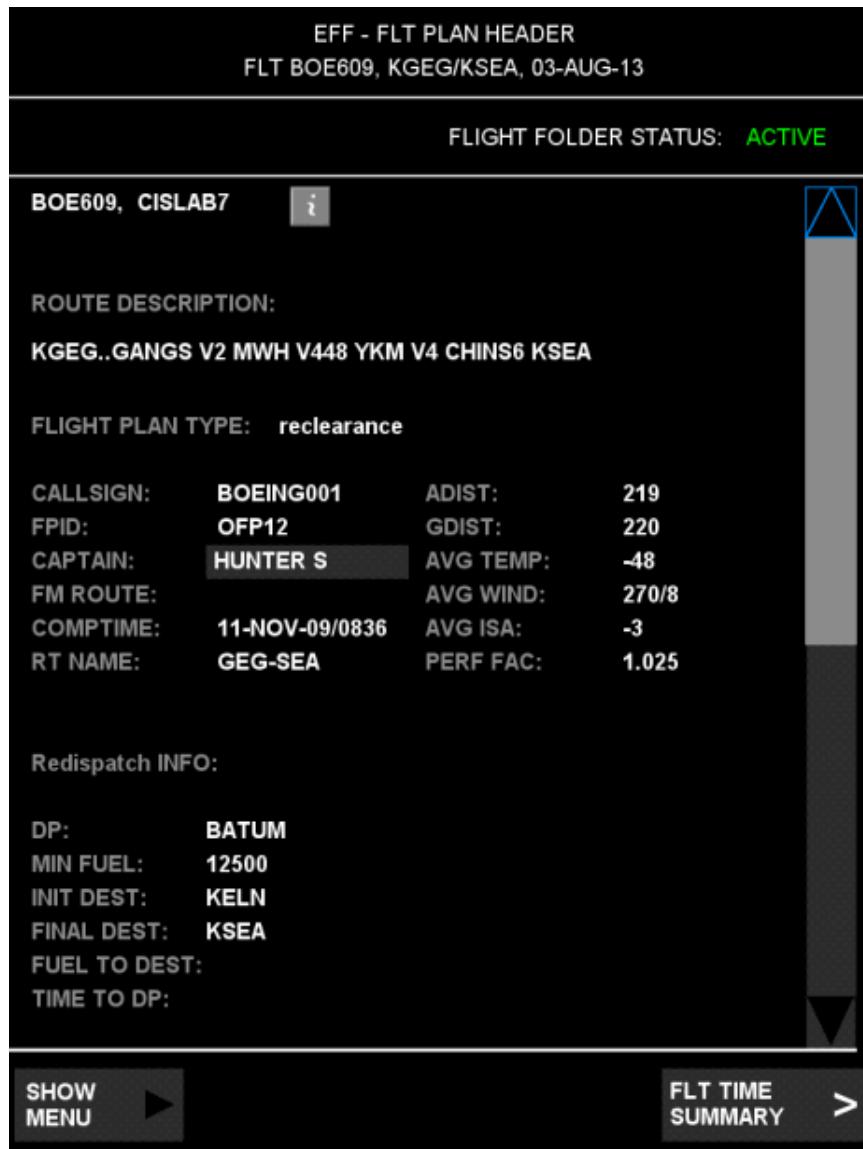
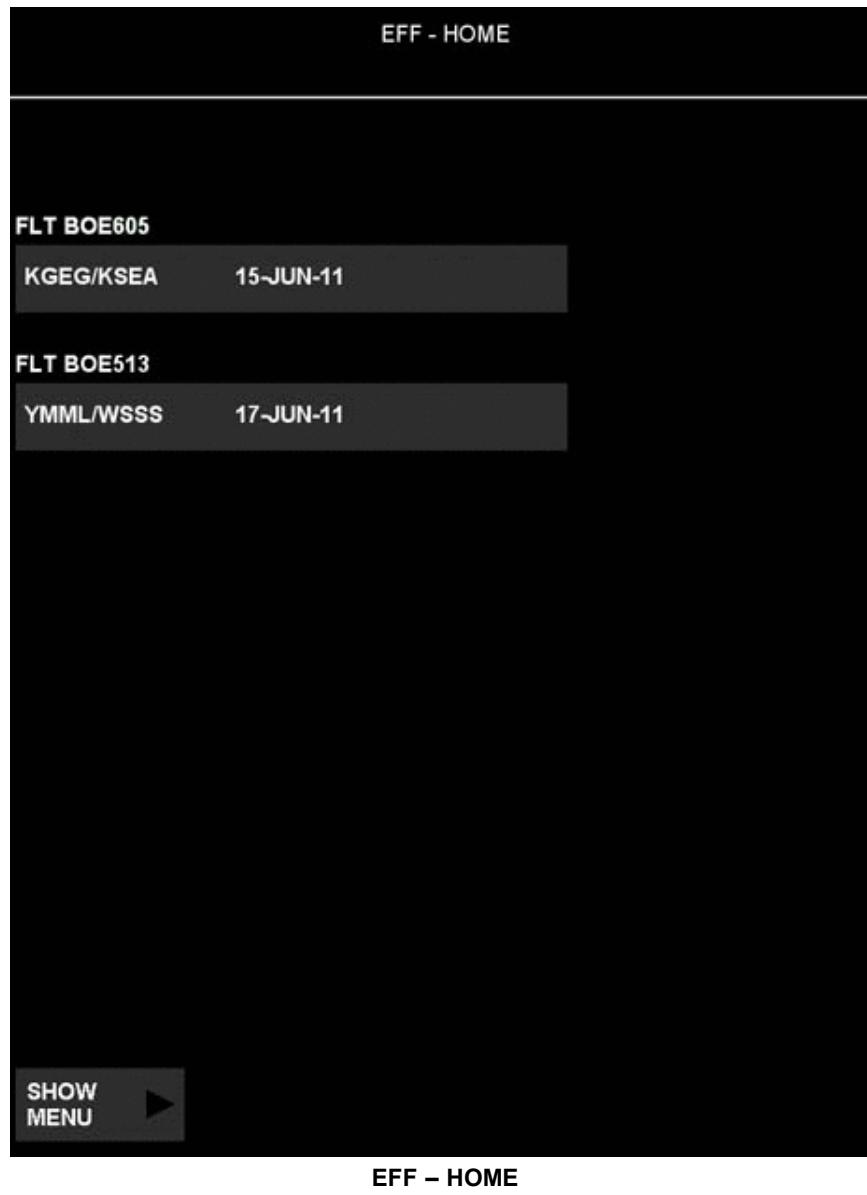


Illustration of EFF's labels and content format

Features of EFF

When you launch EFF, the application displays the EFF – HOME page.



Use this page to view the following information:

- A list of up to six available flight folders in chronological order. The flight folder with the earliest flight origin date and scheduled time of departure appears at the top of the list.

NOTE: EFF displays a message when no flight folders have been loaded onto the EFB.

Each flight folder is represented as a selectable button. (See the “Selecting a Flight Folder” section for information about accessing a flight folder.) EFF displays the origin and destination airport as an IATA or ICAO code, depending on your organization’s configuration.

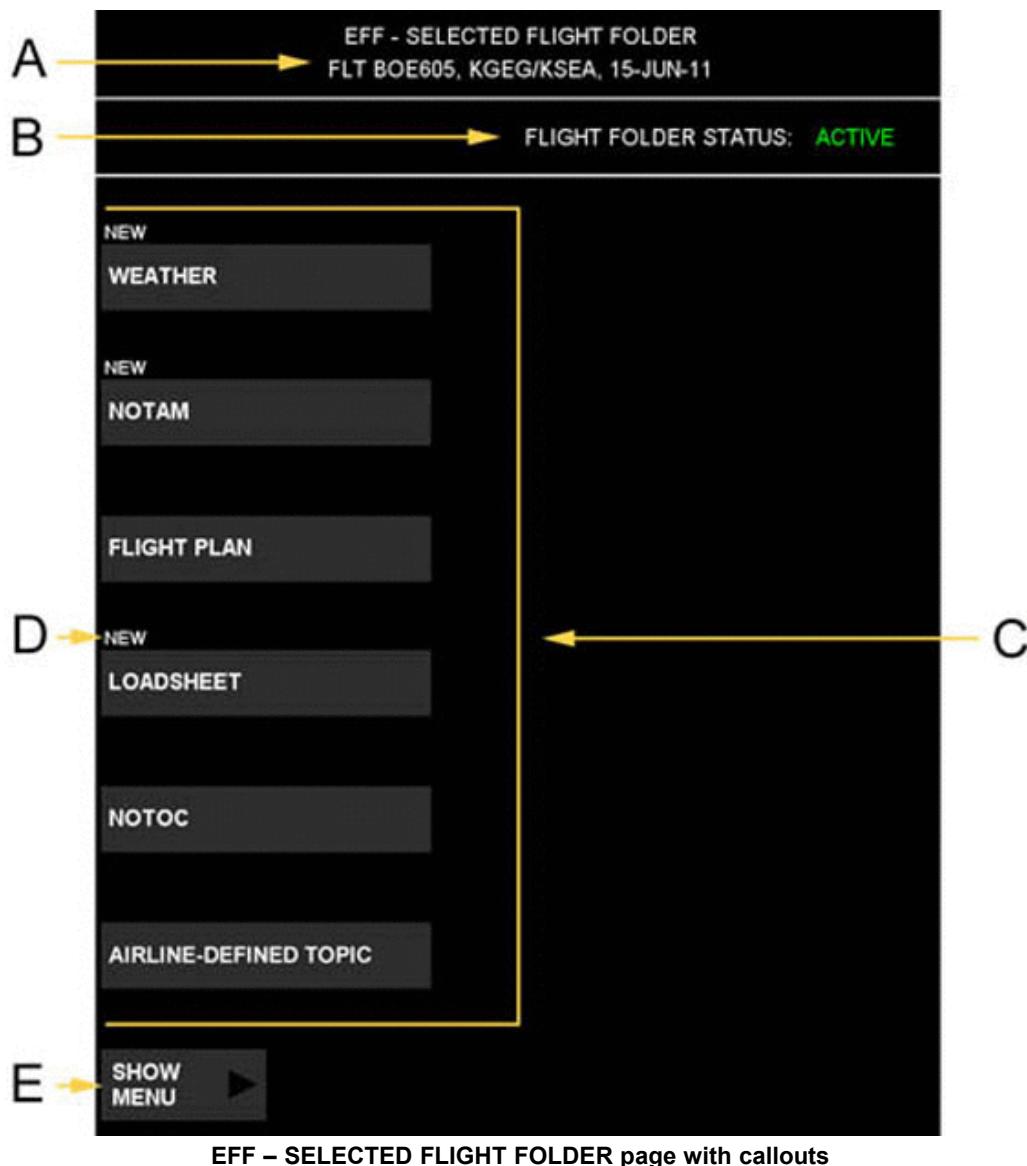
- Information about each flight folder, including flight number, origin and destination, and flight date.
- The application also indicates flight folder status. Folders can be SIGNED, ACTIVE, or PENDING. If a flight folder is in the PENDING state, EFF displays no status indicator.

See the “Recognizing Flight Folder Status” section for more information.

Access additional EFF features through the **SHOW MENU** button. (See the “Performing Secondary Tasks” section for more information.)

Understanding Flight Folders

Flight folder contents are customizable and can include flight plan, weather, NOTAM, loadsheet, and NOTOC information. When you open a flight folder, EFF displays the EFF – SELECTED FLIGHT FOLDER page.



This page contains a list of the topics in the flight folder. The page is organized in five sections:

A—The flight number, flight origin and destination, and flight date.

B—The status of the flight folder. See the “Recognizing Flight Folder Status” section for more information about status types.

C—A list of flight folder topics (for example, WEATHER, NOTAM, and FLIGHT PLAN). The topics that appear on this page depend on the contents of the flight folder. Your organization can configure the location of the buttons that correspond to the various topics. In addition to the EFF-defined topics that appear on this page, you might also see one additional topic that your organization created to address specific needs. For the purpose of this documentation, these topics are referred to as "airline-defined topics." EFF labels the airline-defined topic button based on the contents of the flight folder.

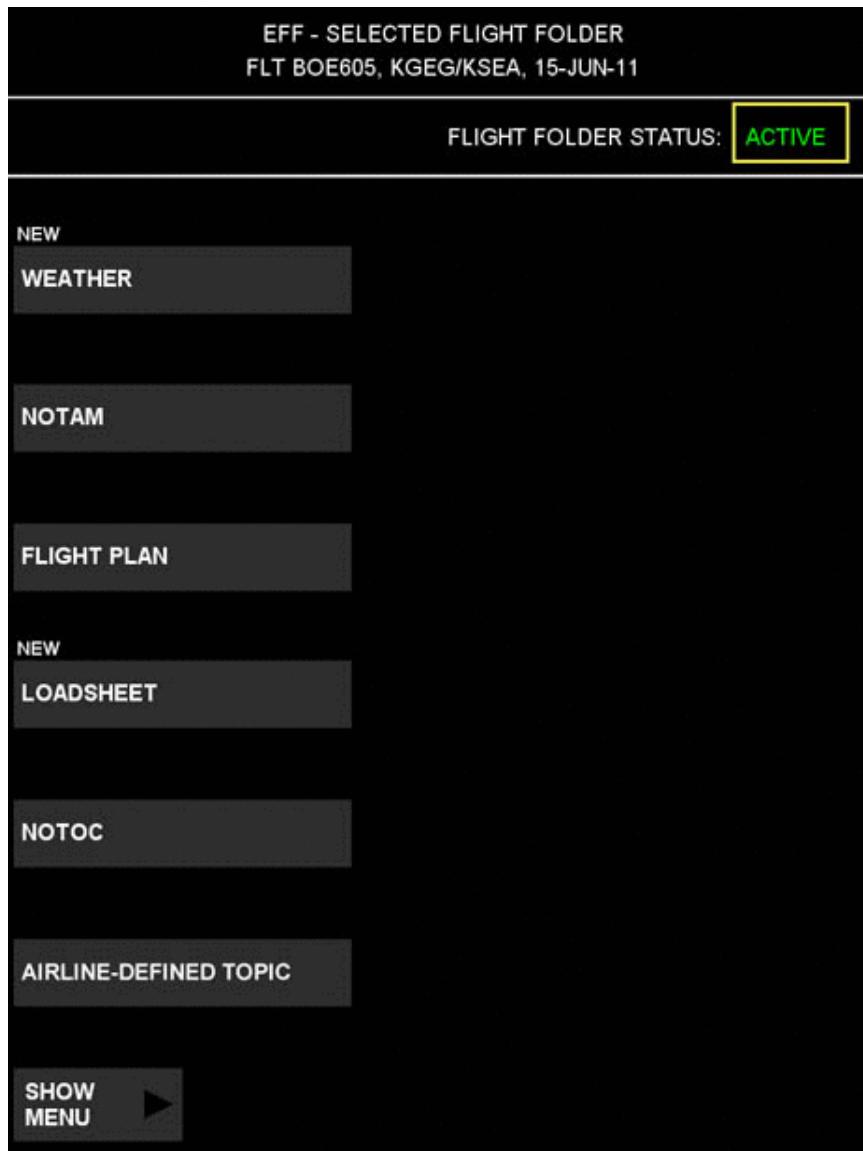
D—The status of the topics in the flight folder. (See the "Recognizing Flight Folder Topic Status" section for more information.)

E—The **SHOW MENU** button.

Select the associated buttons to access specific topics. If a button is inactive, that topic has not been loaded into the flight folder.

Recognizing Flight Folder Status

EFF displays flight folder status on the right side of the page.



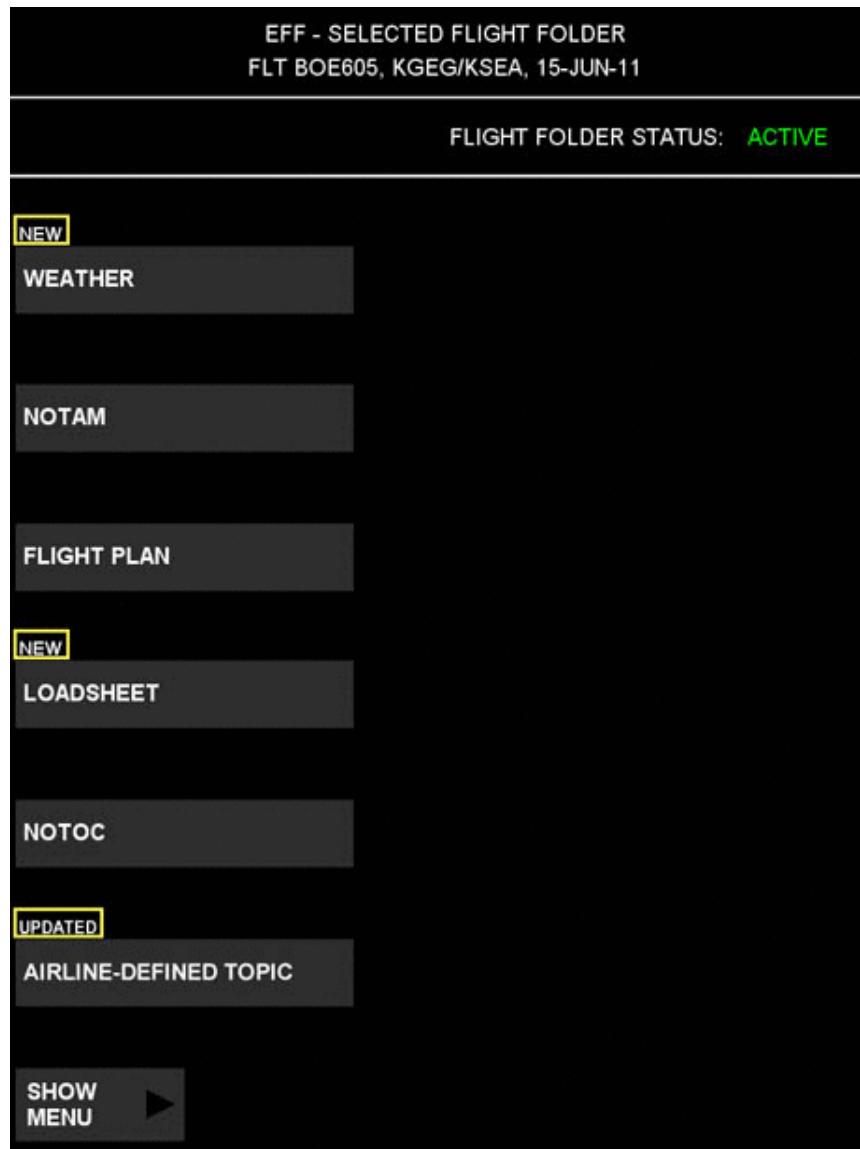
Flight folder status area

A flight folder can have one of four different status types:

- PENDING—Indicates that the flight folder has not yet been signed, activated, or closed.
- SIGNED—Indicates that the flight crew (or other appropriate designee) has signed a flight plan in the flight folder. Depending on your organization's policies, you can sign all of the flight folders that EFF displays on the EFF – HOME page.
- ACTIVE—Indicates that this folder contains a signed flight plan that will gather the avionics data during the current flight. The ACTIVE flight folder appears at the top of the list of available flight folders. After a preceding ACTIVE flight folder is closed, a SIGNED flight folder moves to the top of the flight folder list on the EFF – HOME page and becomes ACTIVE automatically.
- CLOSED—Indicates that the flight folder is closed and will not acquire any more flight plan data. The flight folder is available in read-only mode; you cannot make changes to it.

Understanding Flight Folder Topic Status

EFF displays the status of the flight folder topics above each topic button on the EFF – SELECTED FLIGHT FOLDER page.



Flight folder topic status area

Flight folder topics can have one of four different status types:

- NEW—if you have not yet reviewed the topic, EFF displays the word “NEW” above the topic button.
- UPDATED—if the flight folder is ACTIVE and the topic has been revised since you last viewed it, EFF displays the word “UPDATED” above the topic button.
- DEACTIVATED—if the topic has been deactivated, EFF displays the word “DEACTIVATED” above the topic button.
- Blank—if you have viewed the topic, no status indicator appears above the topic button.

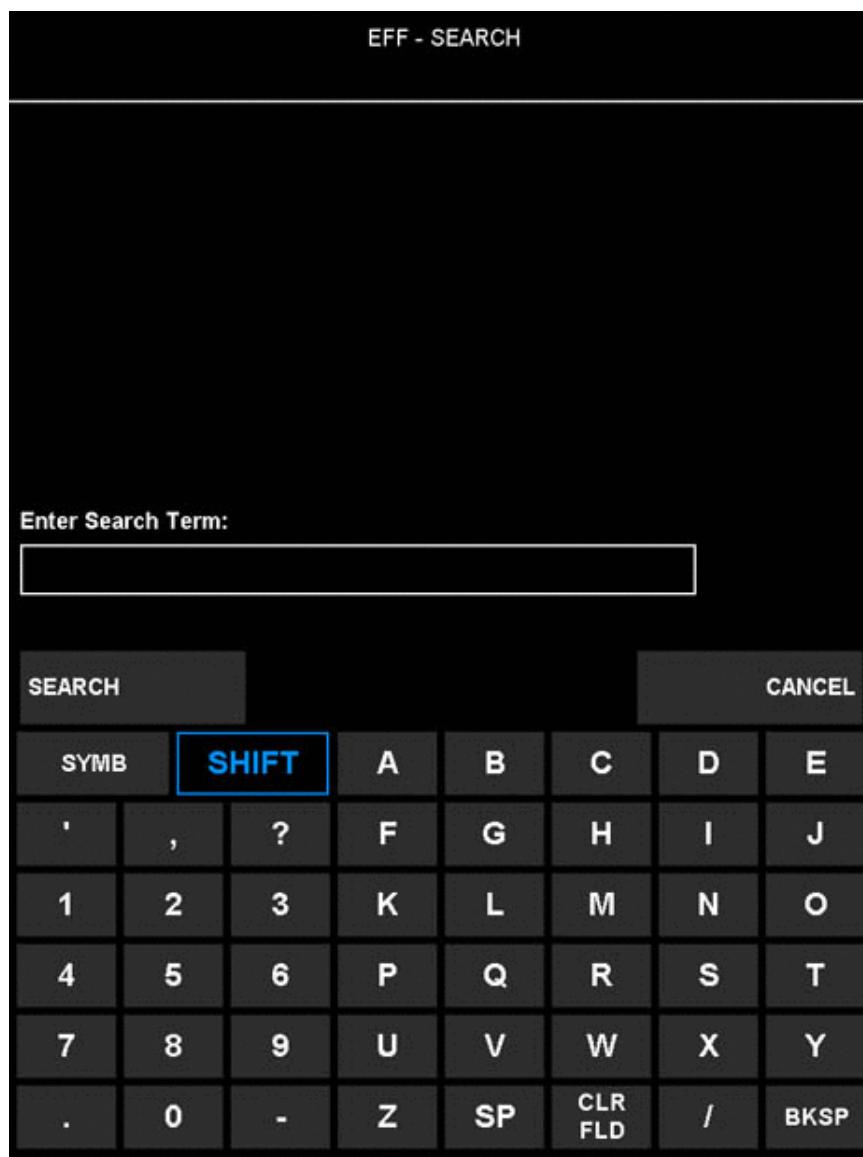
Performing Text Searches

You can perform text searches on NOTAM or WEATHER text documents (plain text, PDF, or HTML format). The EFF search function is not case sensitive, and it does not support wild cards or special characters.

To perform a text search:

- From the appropriate page, select **SHOW MENU > SEARCH**.

EFF displays the search page.

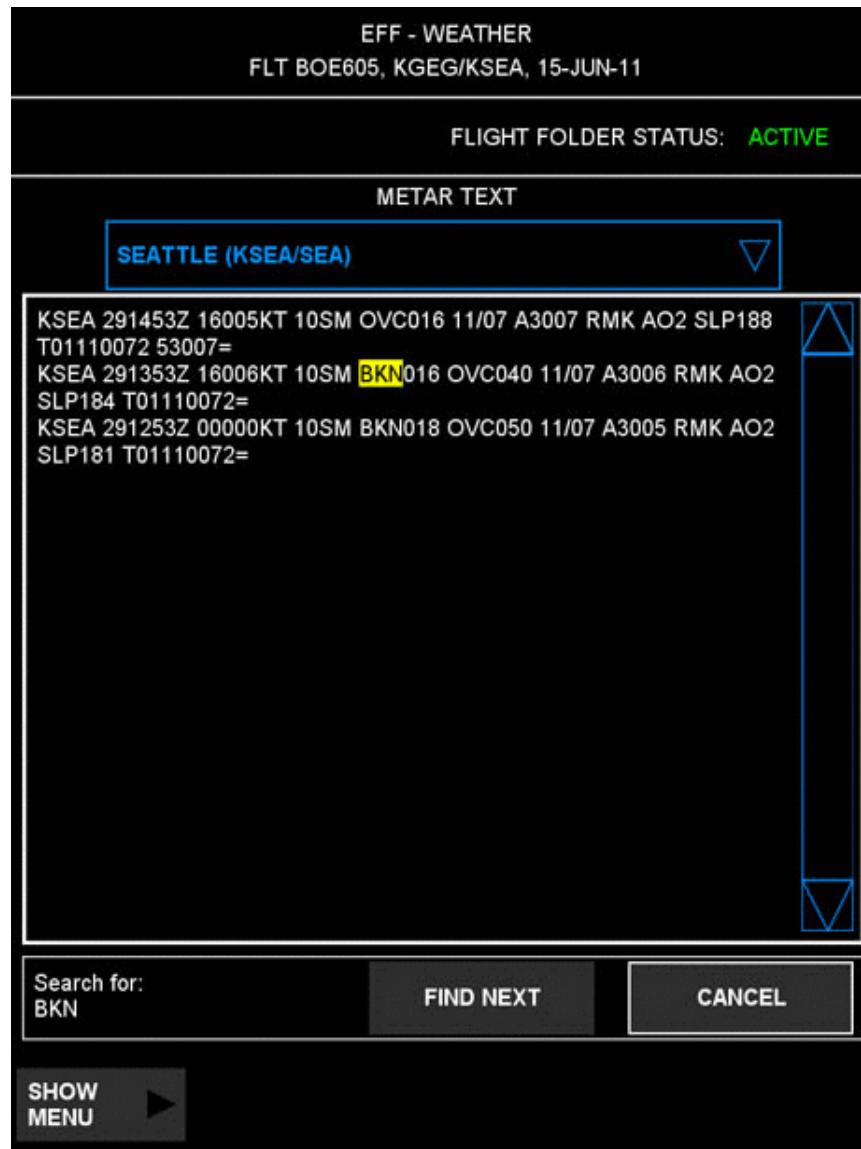


EFF – SEARCH page

- Enter your search terms.

- Select **SEARCH**.

EFF returns you to the text and highlights the first matching term.



Search results with highlighted term

To continue searching, select **FIND NEXT**. EFF continues to scroll the page and highlight matches. When EFF highlights the last match, the application displays an option that enables you to start the search again from the top; select **NO** to end the search, or select **YES** to start the search again.

If EFF is unable to locate the search terms that you entered, it displays a notification.

4. Select **CANCEL** to end the search.

Highlighting Text

You can highlight text in NOTAM or WEATHER text documents (plain, HTML or XML).

To highlight text:

1. From the display screen, select **SHOW MENU > HILITE TEXT**.
- EFF enters highlight mode.
2. Select the content to highlight.
3. When you are finished highlighting content, select **EXIT**.

The highlights persist until the flight is closed.

EFF also provides the following options in highlight mode:

- **UNDO LAST**—Removes the last highlight.
- **CLEAR ALL**—Removes all highlights.

Manipulating Images

EFF can display GIF, JPG, PNG, and PDF files. You can zoom in and out on these images, rotate them, and pan them.

Zooming Images

To zoom in or out on an image, use the Zoom In or Zoom Out bezel buttons. Each click of the zoom button increments the zoom level, and the application maintains the graphic center. When you reach the maximum zoom level, EFF does not zoom the image any further.

To reset the image to its original display size, select **SHOW MENU > RESET ZOOM**.

Rotating Images

To rotate an image, select **SHOW MENU > ROTATE > ROTATE-RIGHT** or **SHOW MENU > ROTATE > ROTATE-LEFT**. The application rotates the image 90 degrees left or right. You can continue to select the rotation buttons until you are satisfied with the image position.

Panning Images

After you zoom in on an image, the entire image might no longer fit within the display area. In such cases, pan the image to view any content that does not appear within the display area.

Depending on the type of EFB environment you are working in, drag your finger across the EFB screen or select the Up, Down, Left, or Right bezel buttons to reposition the image.

Printing Images or Text

Although one of the goals of EFF is to reduce paper in the cockpit, you might want to print an image or text. To print from the associated page, select **SHOW MENU > PRINT**.

No **PRINT** option exists on the EFF – WEATHER HOME, EFF – NOTAM HOME, or EFF – NOTOC pages. To print weather, NOTAM, and NOTOC information, you must open a flight document and select **PRINT**.

See the “Printing the Flight Plan” section for more information about printing the flight plan.

Printing the Flight Plan

Select **SHOW MENU > PRINT** to print from any flight plan page. If you print from the EFF – FLT PLAN HOME page, EFF prints the flight plan documents in the order in which the topics appear on the EFF – FLIGHT PLAN HOME page, except that it prints the EFF – ATC FLIGHT PLAN page at the end of the flight plan printout.

If you print from a specific flight plan topic page (such as the EFF – WAYPOINTS page), EFF prints only that section of the OFP. To print the entire OFP, print from the FLT PLAN HOME page.

NOTE: EFF does not print the EFF – WAYPOINT DETAILS, EFF – AIRPORT DATA, or SIGNATURE pages.

EFF follows specific printing guidelines:

- Each section of the flight plan printout displays the document header (for example, FLIGHT TIME SUMMARY).
- Additional information associated with the document (for example, the flight plan author informational page) prints at the end of the main document.
- For most user-input fields that contain no values, the application prints a series of three dashes. For Date/Time fields that contain no values, the application prints four dashes, followed by the letter Z.
- Printed data is organized in the same structure as the on-screen data.

Referencing Information Icons

On some EFF pages, an information ("i") icon indicates supplementary information. Select the icon to view the additional information. The information on these supplementary pages comes from the uploaded flight plan.

EFF - FLT PLAN HEADER
FLT BOE609, KGEK/KSEA, 03-AUG-13

FLIGHT FOLDER STATUS: **ACTIVE**

BOE609, CISLAB7		
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ROUTE DESCRIPTION:
KGEK..GANGS V2 MWH V448 YKM V4 CHINS6 KSEA

FLIGHT PLAN TYPE: reclearance

CALLSIGN:	BOEING001	ADIST:	219
FPID:	OFP12	GDIST:	220
CAPTAIN:	HUNTER S	AVG TEMP:	-48
FM ROUTE:		AVG WIND:	270/8
COMPTIME:	11-NOV-09/0836	AVG ISA:	-3
RT NAME:	GEG-SEA	PERF FAC:	1.025

Redispatch INFO:

DP:	BATUM
MIN FUEL:	12500
INIT DEST:	KELN
FINAL DEST:	KSEA
FUEL TO DEST:	
TIME TO DP:	

SHOW MENU  **FLT TIME SUMMARY** 

Information ("i") icon

Reference a specific flight plan topic for more information about the supplementary pages associated with the information icons.

Signing a Flight Plan, a Loadsheets, or NOTOCs

Depending on your organization's needs, you might be required to sign any or all of the following components:

- Flight Plan
- Loadsheets
- NOTOC

Your organization can set up EFF to generate a MEMO notification if you fail to make required signatures. The application can generate these memos at specific airplane events, and these events can vary from one airplane type to another (such as from a 777 to a 787). For example, an organization can set up a

777 to generate a MEMO notification upon the closure of the aircraft doors to alert you that the flight plan, NOTOC, or loadsheet are not yet signed.

EFF can be configured to validate a user's signature to ensure the identity of personnel who sign documents that require signatures. EFF validates a user's signature by comparing the credentials supplied by the user against the user's credentials in the Crew Data file (CDF). Validation is not meant to prohibit nonvalidated individuals from using the application. If your organization requires onboard validation, the application directs you to the Signature Accounts page before you can sign the component. Depending on operational requirements, you might be able to sign the component with a provisional signature, even if you are not identified in the CDF. Provisional signatures remain on the EFB until the flight is closed.

NOTE: If your EFB is loaded with a Crew Data file (CDF), and your organization requires *on-board validation* of signatures, the steps to sign and validate a component of the flight folder differ slightly.

Signing with No On-Board Validation Required

If your organization requires a password for signatures, the signature pages display a password field. The signature pages might also include additional information, such as a disclaimer.

The password that you enter in EFF is not used to validate you on the EFB. The password information is part of the signature information sent to ground. The signature information is encrypted so that ground systems can validate it at a separate time based on your organization's procedures; EFF does not require that the signature be verified before departure.

EFF - SIGN FLIGHT PLAN																																																						
FLT BOE886, YMML/WSSS, 12-NOV-11																																																						
CONFIRM																																																						
NAME: <input type="text" value="DB SCHULTZ"/> ▼ PERSONNEL ID: <input type="text" value="1076492"/> PASSWORD: <input type="password" value="*****"/> <small>NOTE: This is optional sample text. Your organization can configure the text that appears in this area, for example to provide a disclaimer or other information.</small>																																																						
CANCEL																																																						
<table border="1" style="margin: auto; border-collapse: collapse; width: fit-content;"> <thead> <tr> <th style="background-color: #0070C0; color: white; text-align: left; padding: 2px;">SYMB</th> <th style="background-color: #0070C0; color: white; text-align: left; padding: 2px;">SHIFT</th> <th style="background-color: #0070C0; color: white; text-align: left; padding: 2px;">A</th> <th style="background-color: #0070C0; color: white; text-align: left; padding: 2px;">B</th> <th style="background-color: #0070C0; color: white; text-align: left; padding: 2px;">C</th> <th style="background-color: #0070C0; color: white; text-align: left; padding: 2px;">D</th> <th style="background-color: #0070C0; color: white; text-align: left; padding: 2px;">E</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px;">'</td> <td style="text-align: center; padding: 2px;">,</td> <td style="text-align: center; padding: 2px;">?</td> <td style="text-align: center; padding: 2px;">F</td> <td style="text-align: center; padding: 2px;">G</td> <td style="text-align: center; padding: 2px;">H</td> <td style="text-align: center; padding: 2px;">I</td> <td style="text-align: center; padding: 2px;">J</td> </tr> <tr> <td style="text-align: center; padding: 2px;">1</td> <td style="text-align: center; padding: 2px;">2</td> <td style="text-align: center; padding: 2px;">3</td> <td style="text-align: center; padding: 2px;">K</td> <td style="text-align: center; padding: 2px;">L</td> <td style="text-align: center; padding: 2px;">M</td> <td style="text-align: center; padding: 2px;">N</td> <td style="text-align: center; padding: 2px;">O</td> </tr> <tr> <td style="text-align: center; padding: 2px;">4</td> <td style="text-align: center; padding: 2px;">5</td> <td style="text-align: center; padding: 2px;">6</td> <td style="text-align: center; padding: 2px;">P</td> <td style="text-align: center; padding: 2px;">Q</td> <td style="text-align: center; padding: 2px;">R</td> <td style="text-align: center; padding: 2px;">S</td> <td style="text-align: center; padding: 2px;">T</td> </tr> <tr> <td style="text-align: center; padding: 2px;">7</td> <td style="text-align: center; padding: 2px;">8</td> <td style="text-align: center; padding: 2px;">9</td> <td style="text-align: center; padding: 2px;">U</td> <td style="text-align: center; padding: 2px;">V</td> <td style="text-align: center; padding: 2px;">W</td> <td style="text-align: center; padding: 2px;">X</td> <td style="text-align: center; padding: 2px;">Y</td> </tr> <tr> <td style="text-align: center; padding: 2px;">.</td> <td style="text-align: center; padding: 2px;">0</td> <td style="text-align: center; padding: 2px;">-</td> <td style="text-align: center; padding: 2px;">Z</td> <td style="text-align: center; padding: 2px;">SP</td> <td style="text-align: center; padding: 2px;">CLR FLD</td> <td style="text-align: center; padding: 2px;">/</td> <td style="text-align: center; padding: 2px;">BKSP</td> </tr> </tbody> </table>								SYMB	SHIFT	A	B	C	D	E	'	,	?	F	G	H	I	J	1	2	3	K	L	M	N	O	4	5	6	P	Q	R	S	T	7	8	9	U	V	W	X	Y	.	0	-	Z	SP	CLR FLD	/	BKSP
SYMB	SHIFT	A	B	C	D	E																																																
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4	5	6	P	Q	R	S	T																																															
7	8	9	U	V	W	X	Y																																															
.	0	-	Z	SP	CLR FLD	/	BKSP																																															

Signature page with password field

As you enter your password, EFF conceals each character (by turning it into an asterisk) as you type the next one. The application displays the last character for about three seconds before concealing it.

Signing with On-Board Validation Required

If your organization requires onboard signature verification, when you select the signature action for a component that requires a signature, the application displays the Signature Accounts page. On the Signature Accounts page, you must enter your credentials before the application displays the appropriate Signature page. The Signature Accounts page displays a list of users from the Crew Data file. If the list is lengthy, type the first few characters of your name or personnel ID. EFF filters the list of names to match characters that you type.

EFF - SIGNATURE ACCOUNTS
FLT BOE609, KGEK/KSEA, 03-AUG-13

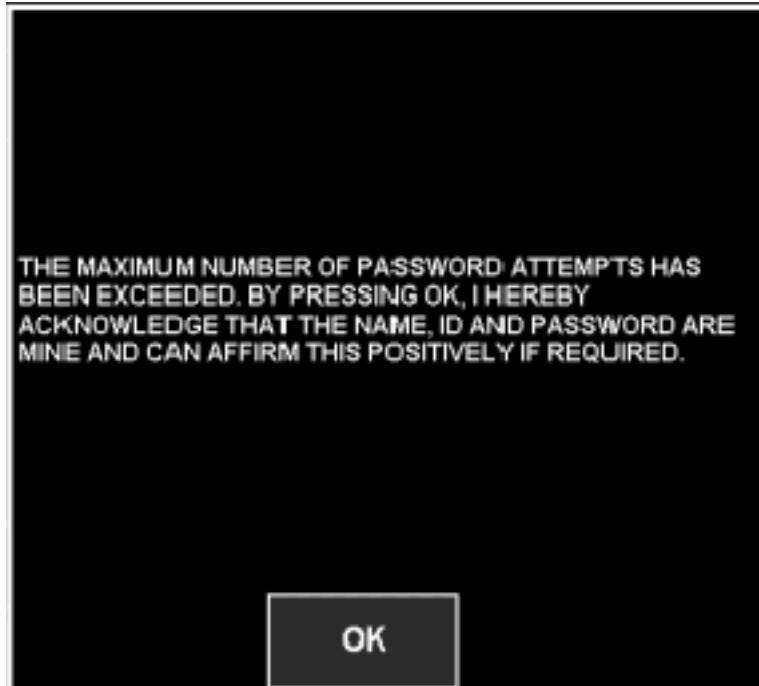
Enter name or personnel ID:								NEW
Available names...								CANCEL

SYMB	SHIFT	A	B	C	D	E	F	G	H	I	J	
'	,	?	F	G	H	I	J	K	L	M	N	O
1	2	3	P	Q	R	S	T	U	V	W	X	Y
4	5	6	Z	SP	CLR FLD	/	BKSP	.	0	-		

EFF – SIGNATURE ACCOUNTS page

If you do not have a valid account, you can still enter a provisional ID. To do so, select the **New** button. After you enter a name and ID, (and password, if your organization requires one), the application displays the applicable Signature page. Note that provisional signatures are stored on the EFB only until the flight is closed.

NOTE: Except in the case of a provisional signature, you must provide a valid password within three attempts. If you fail to provide a valid password, EFF displays a disclaimer message:



Password disclaimer message

Your organization can specify the text that appears in the disclaimer message.

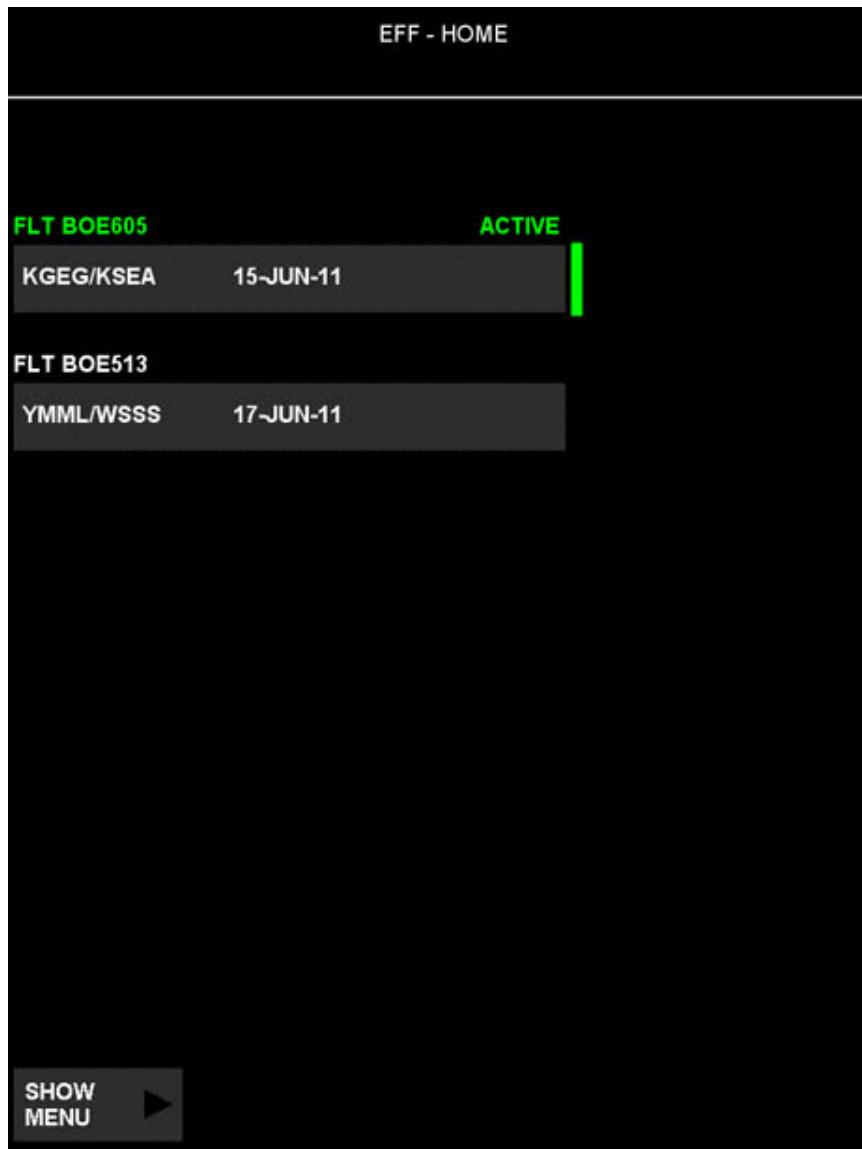
Preparing for a Flight

As you prepare for a flight, perform the following tasks to review and accept the current flight folder so that it records your flight progress information. Perform them in the order that matches your organization's established processes.

- Select a flight folder.
- Review the NOTAMs.
- Review the weather.
- Review the flight plan.
- Review appropriate airline-defined topics, depending on your organization's requirements.
- Review the loadsheet.
- Sign or accept the loadsheet (if necessary as a part of your procedures).
- Review and sign (or accept) the NOTOCs.
- Sign or activate the flight plan.

Selecting a Flight Folder

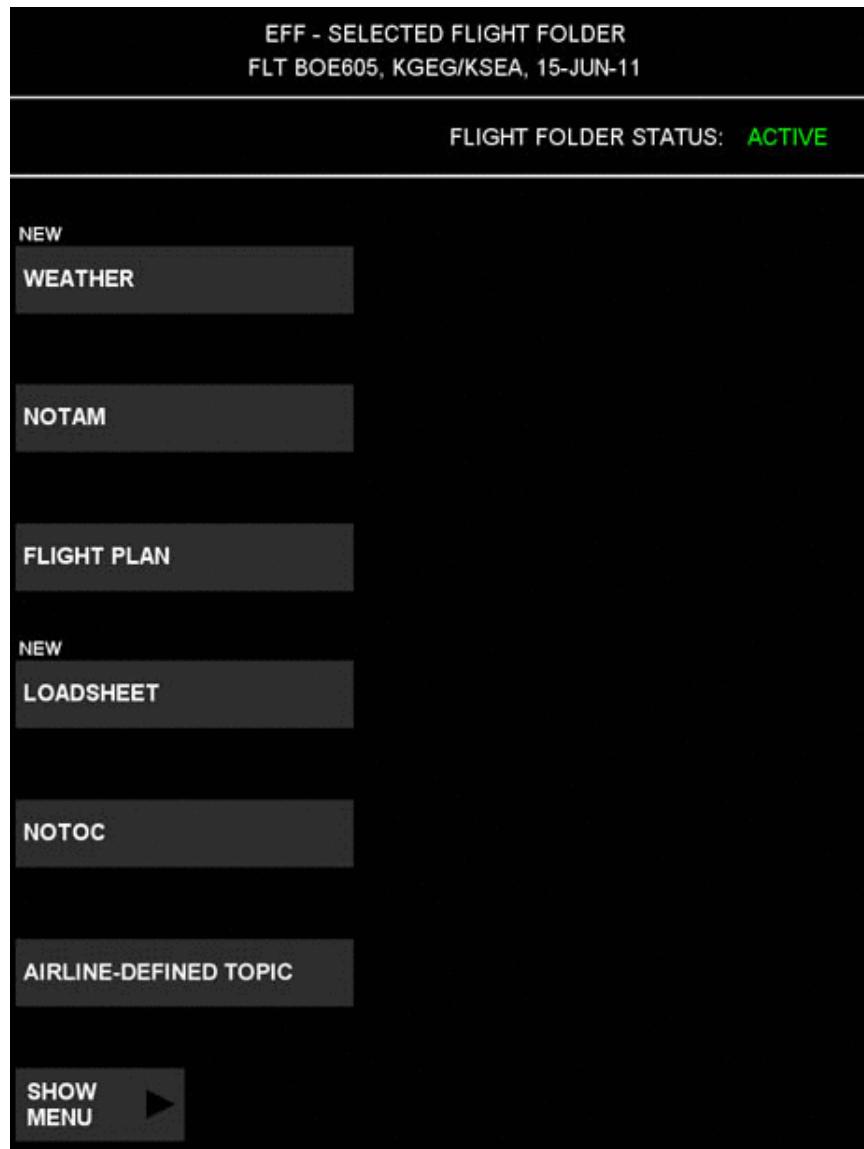
To open a flight folder, select it from the EFF – HOME page. EFF displays the flight folder for the current flight at the top of the flight folder list.



EFF – HOME page with current flight folder at top of list

NOTE: If the folder for your current flight is not at the top of the list or does not appear in the list, follow your organization's established processes for requesting a flight folder or deleting unneeded flight folders. For more information, see the "Performing Secondary Tasks" section. If no flight folders have been uploaded to the EFB, EFF displays a message to notify you.

EFF displays the flight folder contents on the EFF – SELECTED FLIGHT FOLDER page.

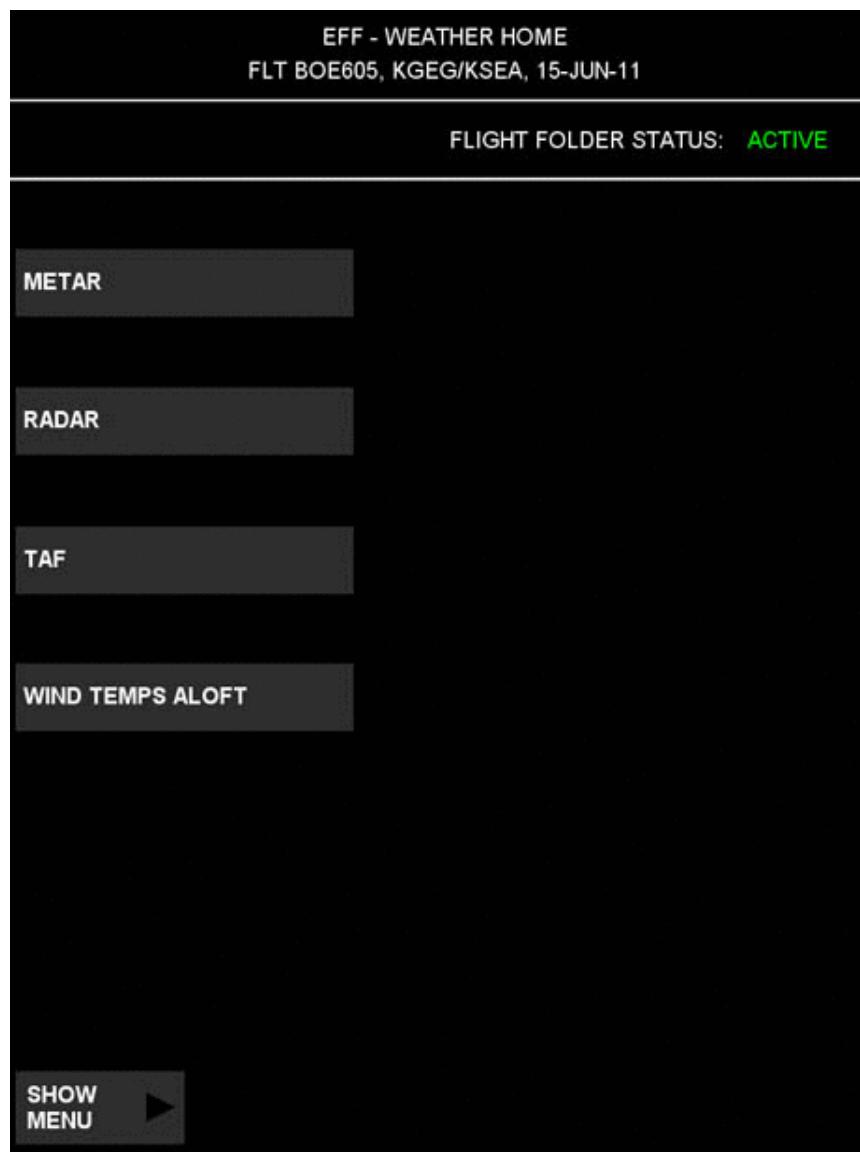


EFF – SELECTED FLIGHT FOLDER page

Reviewing Weather Information

To view weather information associated with your flight, select the **WEATHER** button on the EFF – HOME page.

EFF displays the EFF- WEATHER HOME page.



EFF – WEATHER HOME page

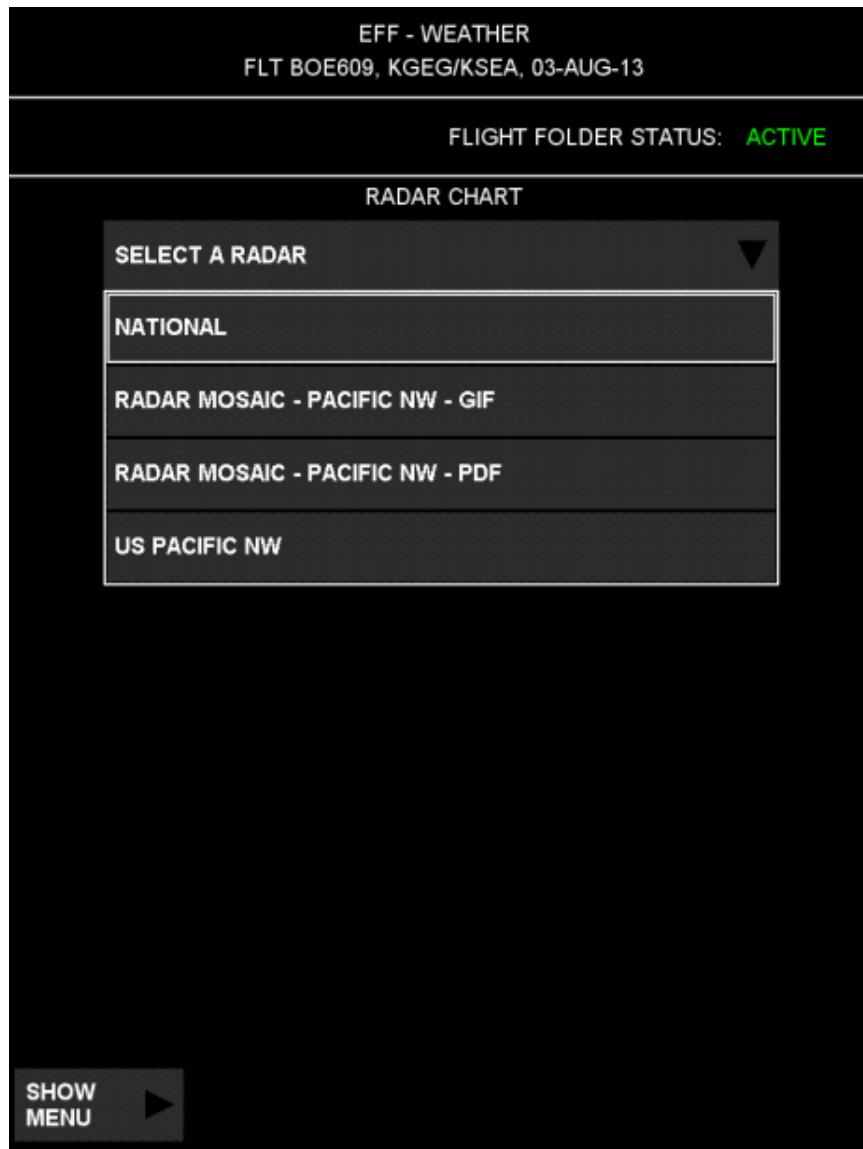
Based on the contents of the flight plan, EFF dynamically generates the weather subtopic buttons (for example, METAR, RADAR, or TAF) and sorts them alphabetically. Depending on the data package that ground personnel uploaded to your EFB, the weather content might be graphical images or textual data.

If the flight folder contains more than 12 subtopics, EFF displays a page range indicator to the right of the EFF – WEATHER HOME label. Use the **PGUP** and **PGDN** bezel buttons to access the other weather pages.

To view weather information:

1. Select the weather subtopic to view. For example, select **RADAR**.

EFF displays the EFF – WEATHER page, which lists all documents within the selected subtopic.



EFF – WEATHER page with drop-down list

2. If necessary, select the appropriate document from the drop-down list.

EFF displays the selected document.

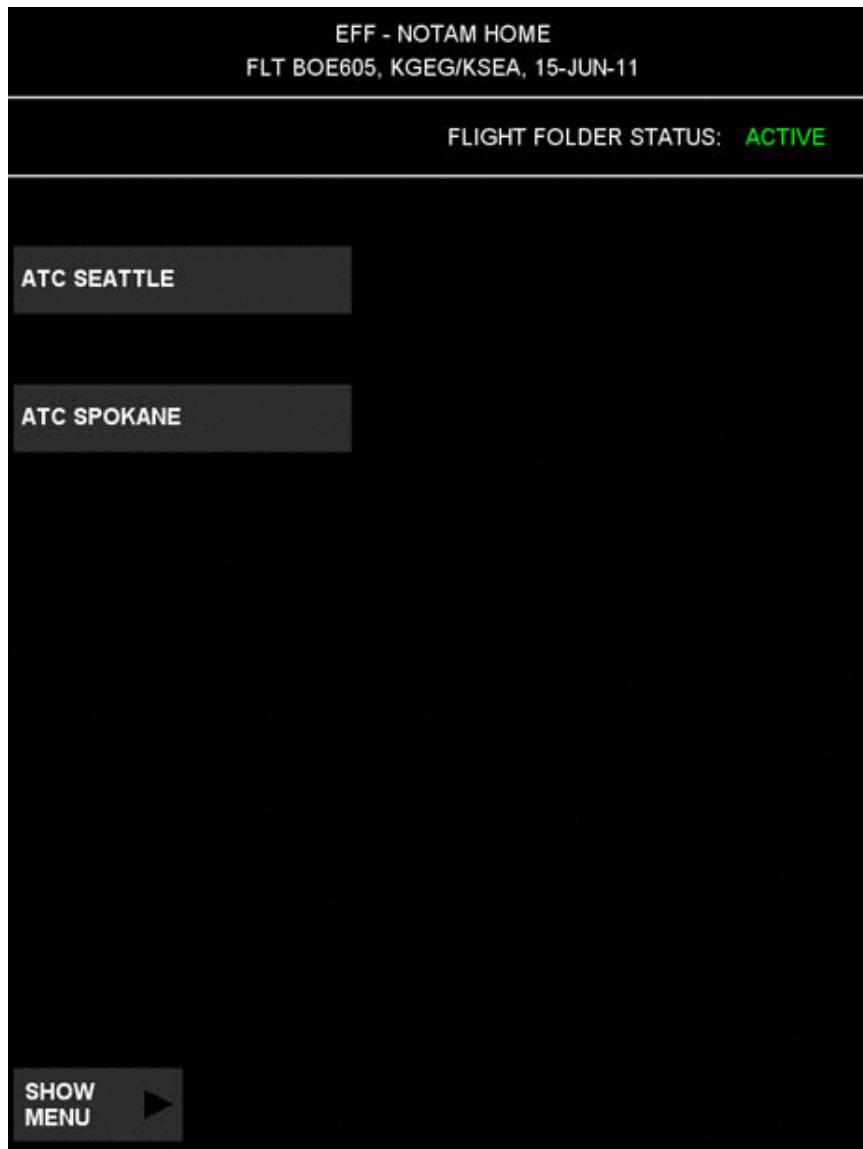


Viewing a weather document

You can view text files or images and PDF files from the EFF – WEATHER page. Optionally, you can rotate images and PDF files. Select **SHOW MENU** and then choose the appropriate rotation option from the menu. To perform basic text searches of textual weather files, select **SHOW MENU > SEARCH** to display the EFF – SEARCH page. You can use standard EFB bezel buttons to zoom the image or text that appears. To quickly reset the default zoom level, select **SHOW MENU > RESET ZOOM**.

Reviewing NOTAM Information

To view the NOTAMs that are associated with your flight, select the **NOTAM** button on the EFF – SELECTED FLIGHT FOLDER page. EFF displays the EFF – NOTAM HOME page.



EFF – NOTAM HOME page

From this page, you can review all NOTAMs that apply to your route of flight and destination. EFF dynamically generates NOTAM subtopic buttons based on the flight plan content and sorts them alphabetically. If the flight folder contains more than 12 subtopics, EFF displays a “Page X/Y” page range indicator to the right of the EFF – NOTAM HOME label. Use the **PGUP** and **PGDN** bezel buttons to access the other NOTAM pages.

NOTAM information can exist in one subtopic, or it might be divided into multiple subtopics. Select the appropriate subtopic button to view a document.

You can use standard EFB bezel buttons to zoom the text that appears. To quickly reset the default zoom level, select **SHOW MENU > RESET ZOOM**.

EFF - NOTAM
FLT BOE605, KGEK/KSEA, 15-JUN-11

FLIGHT FOLDER STATUS: **ACTIVE**

ATC SEATTLE

KSEA SEATTLE-TACOMA INTL	
06/759 - RAMP TAXILANE NORTH OF NORTH SATELLITE CLSD WINGSPAN 137/OVER. WIE UNTIL 10 JUL 06:59 2037. CREATED: 29 JUN 14:30 2010	
06/758 - RAMP TAXILANE NORTH OF NORTH SATELLITE RELOCATED 167 SOUTH. WIE UNTIL UFN. CREATED: 29 JUN 14:28 2010	
06/757 (A0913/10) - RAMP TAXILANE EAST OF NORTH SATELLITE RELOCATED 128 NORTH WEST. WIE UNTIL UFN. CREATED: 29 JUN 14:26 2010	
06/755 (A0908/10) - RAMP TAXILANE EAST OF NORTH SATELLITE CLSD WINGSPAN 137/OVER. WIE UNTIL UFN. CREATED: 29 JUN 14:16 2010	
06/751 (A0901/10) - NAV RWY 16L ILS CAT 2 NA. WIE UNTIL UFN. CREATED: 29 JUN 13:27 2010	
06/724 (A0897/10) - NAV RWY 16L ILS U/S. 29 JUN 17:00 2010 UNTIL 29 JUN 18:00 2010. CREATED: 28 JUN 15:09 2010	

SHOW MENU 
ATC SPOKANE >

Viewing a NOTAM

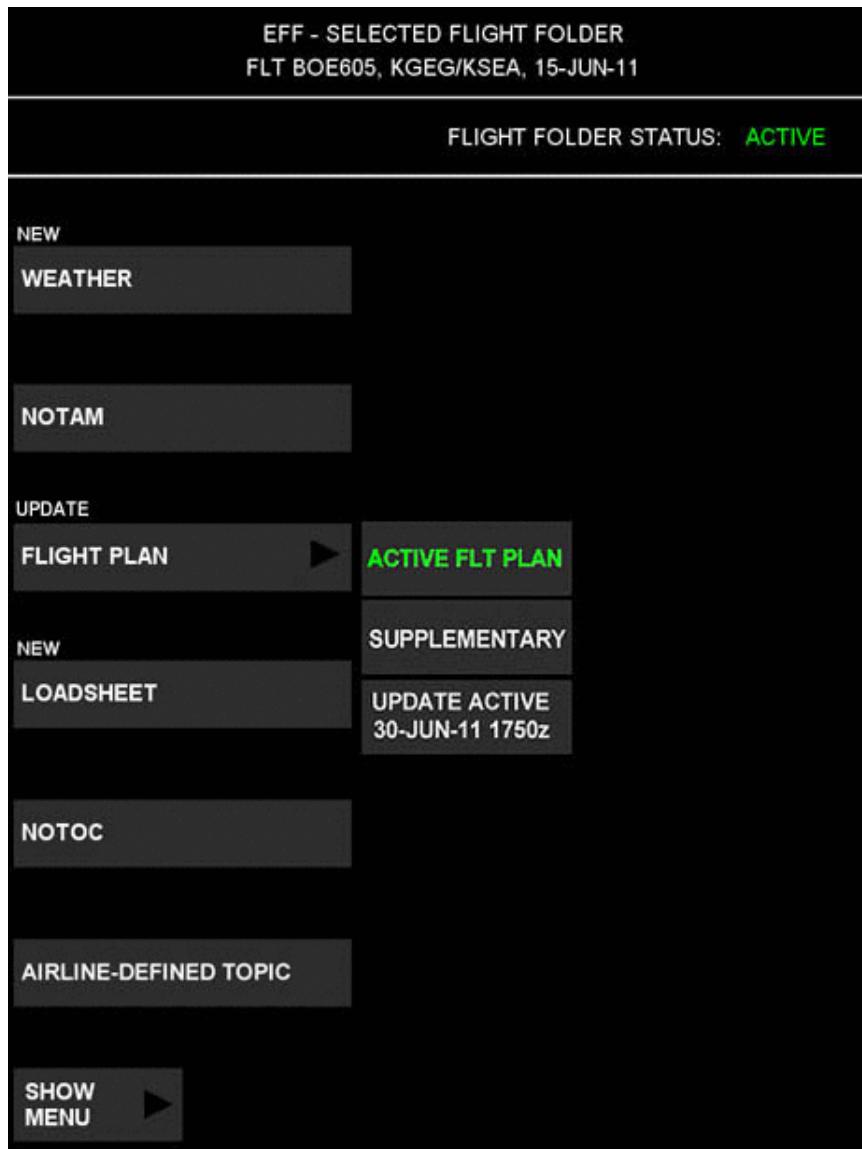
Shortcut buttons at the bottom of the page enable you to navigate back and forth among the NOTAMs that apply to your route of flight and destination.

To perform basic text searches of NOTAMs, select **SHOW MENU > SEARCH** to display the EFF – SEARCH page.

Reviewing the Flight Plan

If the Operational Flight Plan (OFP) has been signed or activated and an update has been received, or if more than one OFP document exists in the flight folder, when you select the **FLIGHT PLAN** button on the EFF – SELECTED FLIGHT FOLDER page, EFF displays a cascading menu of available flight plans.

For information about selecting the appropriate flight plan, see the “Updating Flight Folders” section.



Cascading menu of available flight plans

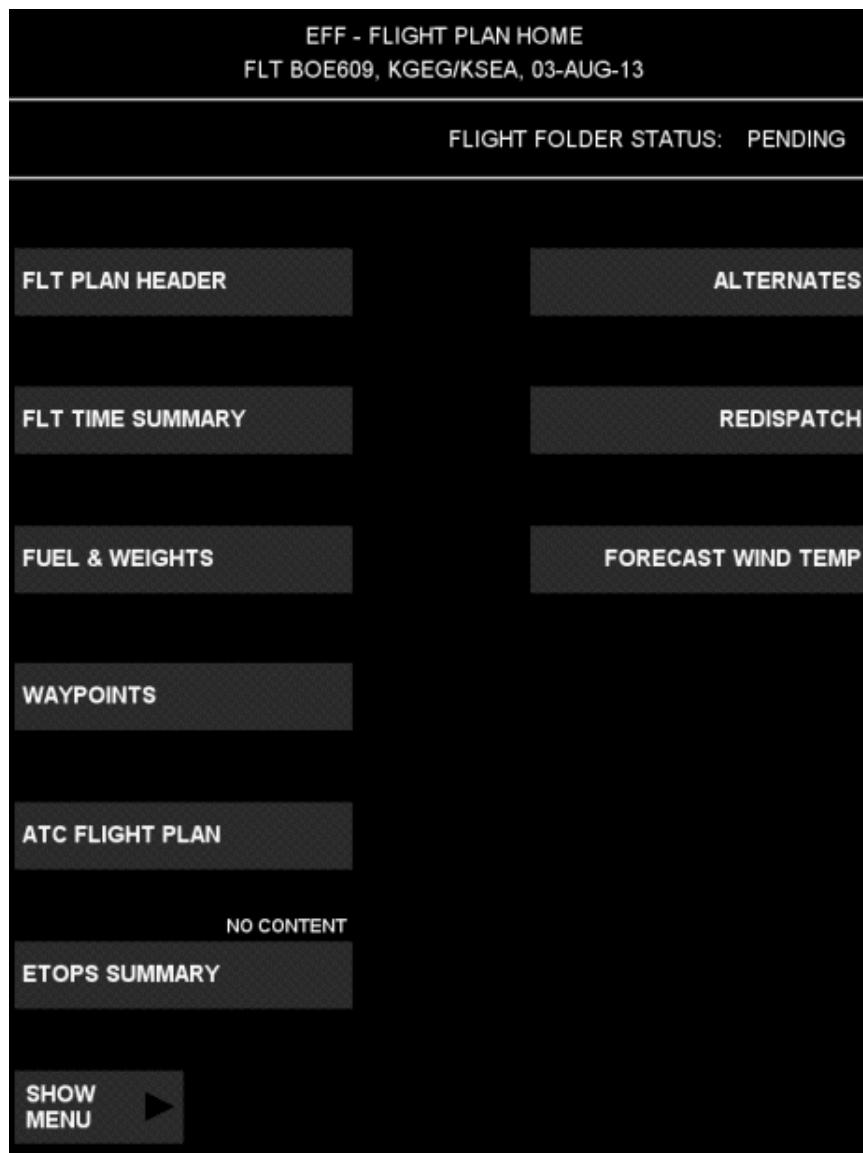
Possible flight plans are:

- ACTIVE FLT PLAN (in green text)—The flight plan for the current route; this flight plan logs the flight-progress data from avionics.
- UPDATE—An updated flight plan from ground personnel (if a signed flight plan exists). The date and time stamp on the button indicates the time of the update.
- REROUTE—A flight plan provided by the dispatcher that is a change in routing for the city pair.
- SUPPLEMENTARY—A flight plan provided by the dispatcher as an addition to the primary flight plan.
- OLD—A flight plan that has been replaced by an update after the flight crew signed or activated the original flight plan.

To open the EFF – FLIGHT PLAN HOME page:

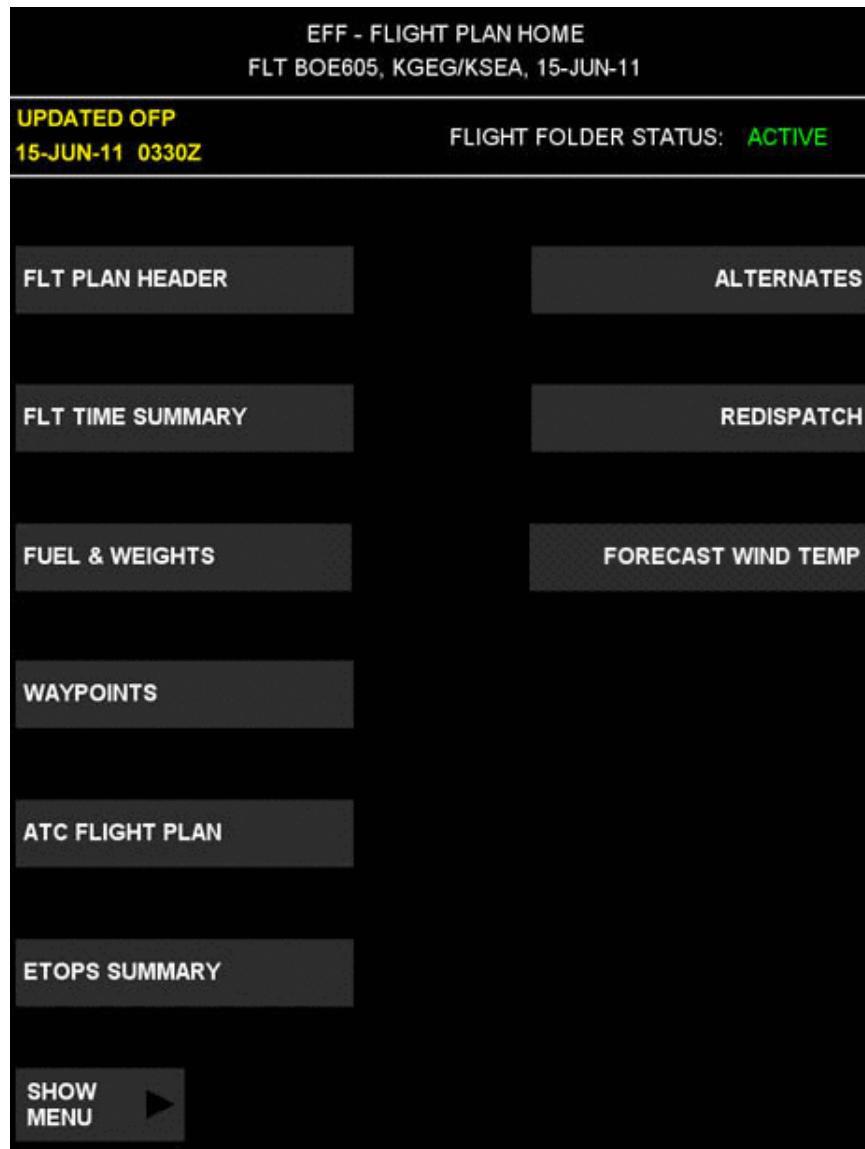
1. Select **FLIGHT PLAN** on the EFF – SELECTED FLIGHT FOLDER page.
2. If necessary, select the appropriate flight plan from the cascading menu.

EFF displays the EFF – FLIGHT PLAN HOME page.



EFF – FLIGHT PLAN HOME page

This page displays information about the selected flight folder and provides access to the flight information in the flight plan. If you select a flight plan other than the primary flight plan, a status identifier appears at the top left of the page (to the left of the flight folder status).



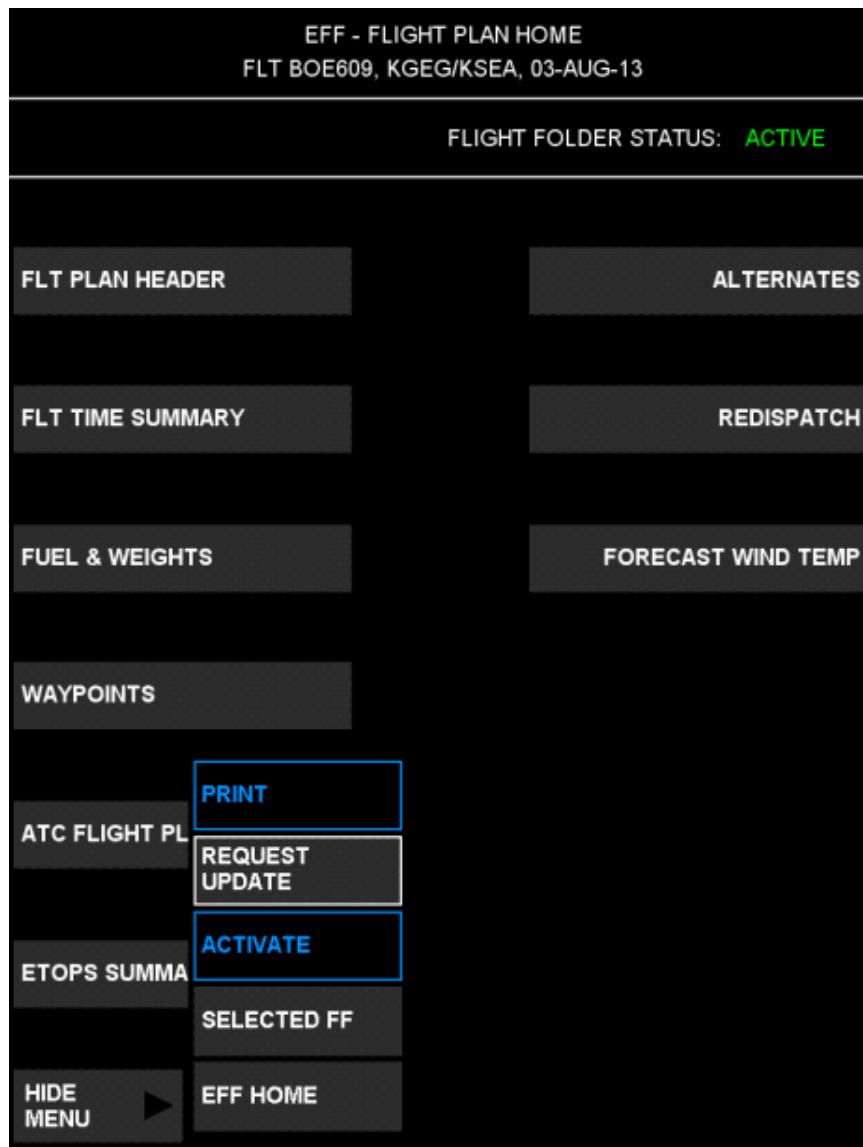
Example OFP indicator

The flight plan can contain the following topics:

- FLIGHT PLAN HEADER
- FLIGHT TIME SUMMARY
- FUEL & WEIGHTS
- WAYPOINTS
- ATC FLIGHT PLAN
- ETOPS SUMMARY
- ALTERNATES
- REDISPATCH (also called “contingency savings,” “reclearance,” or “reduced reserve”)

NOTE: Your organization configures the order of the flight plan topics and the appearance of the bezel buttons on the EFF – FLIGHT PLAN HOME page. Use the shortcut buttons on each page to review the documents in the sequence that your organization defined.

The options associated with the **SHOW MENU** button are specific to the flight plan. Depending on the state of the EFF data, only some of these options might appear.



Flight Plan SHOW MENU options

These options include:

- PRINT—Prints the flight plan. (See the “Printing the Flight Plan” section).
- REQUEST UPDATE—Sends a message to ground to request an update to the plan.
- ACTIVATE—Activates an updated flight plan when your organization requires no signature to activate the flight plan or this flight plan is an update to a flight plan that has already been signed or activated.
- SIGN—Opens the signature page for authorizing the flight plan.

- SELECTED FF—Opens the EFF – SELECTED FLIGHT FOLDER page.
- EFF HOME—Opens the EFF – HOME page.
- REJECT—Enables you to reject the flight plan. This menu option is available if the flight folder is SIGNED or ACTIVE and the flight plan is an update to the signed or activated OFP.

Viewing the Flight Plan Header Information

The FLT PLAN HEADER page contains the header information for the flight plan. The information that this page displays depends on the contents of the flight plan. Your organization defines the layout and organization of this data.



EFF – FLT PLAN HEADER page

A flight plan header can contain the following information:

- Flight information—Flight identifier or commercial flight number and tail number. To view more information, select the “i” icon. EFF displays an additional Flight Information Memo page, which includes the flight number, aircraft registration information, the date and time of the flight, and the origin and destination of the flight.

- Route information—General information about the route, including a route description. Note that you can edit the name of the Captain that appears below the route information.
- Fuel tankering information—if your organization incorporates fuel tankering operations, this block can be configured to provide advice about tankering for the flight, the profit unit used, an estimate of the amount of tankered fuel carried, a box in which you enter the actual amount of tankered fuel, reason and priority values, and a section for remarks.
- Speed procedure information—the speed schedules for the climb, cruise, and descent phases of the flight. EFF acquires this information from the flight plan and displays the data in up to three columns: CLIMB, CRUISE, and DESCENT. If the flight plan does not provide the specific speed schedule, its associated column is absent.
- Redispatch information (if applicable)—Contingency savings, reclearance, or reduced reserve information. In reduced-reserve operations, the FLIGHT PLAN TYPE is defined as “reclearance,” and the Route Information Block includes redispatch information. For more information, see the “Performing Redispatch Tasks” section.
- Author information—the name and role of the person who created the flight plan. To view this person’s contact information, select the “i” icon.
- Fuel adjustments information—Information regarding any required fuel adjustments to the uploaded flight plan in response to a change in conditions (such as an increase of ZFW or change of flight level). This section is always labeled FUEL ADJUSTMENTS. For more information about using this section, see the “Understanding the FUEL ADJUSTMENTS Area” section.
- Remarks—a free-text field that the flight plan author uses to communicate supplementary information to pilots.

Understanding the FUEL ADJUSTMENTS Area

The FUEL ADJUSTMENTS area follows a standard format:

<deviation reason> CHANGE: <deviation reason change value> <affected items unit ><affected item value> <adjustment value><adjustment unit>

For example: ZFW CHANGE: -1000 KG TOF -322 KG

If a deviation reason has multiple affected items, the subsequent values are displayed in a column format:

EFF - FLT PLAN HEADER
FLT BOE609, KGEG/KSEA, 03-AUG-13

FLIGHT FOLDER STATUS: **ACTIVE**

FINAL DEST: **KSEA**
 FUEL TO DEST:
 TIME TO DP:

CLIMB SPEED	CRUISE LRC
IAS: 280	CL: 150
TAS: 320	

DISPATCHER: J. SMITH 

DISPATCHER REMARK:
ALL DEP GEG EXPECT RWY21 FOR TKOF

FUEL ADJUSTMENTS:

ZFW CHANGE:	1000.0	LB	TOF	732	LB
	-1000.0	LB	TRIPFUEL	-710	LB
FL CHANGE:	-2000.0	FT	TRIP	-174	LB
			TIME	1	S
	-4000.0	FT	TRIP	2057.0	LB
			TIME	3	S

SHOW MENU 

FLT TIME SUMMARY >

FUEL ADJUSTMENTS information

Some attributes (such as flight information and author information) are associated with “i” icons. Select the icons to view more information.

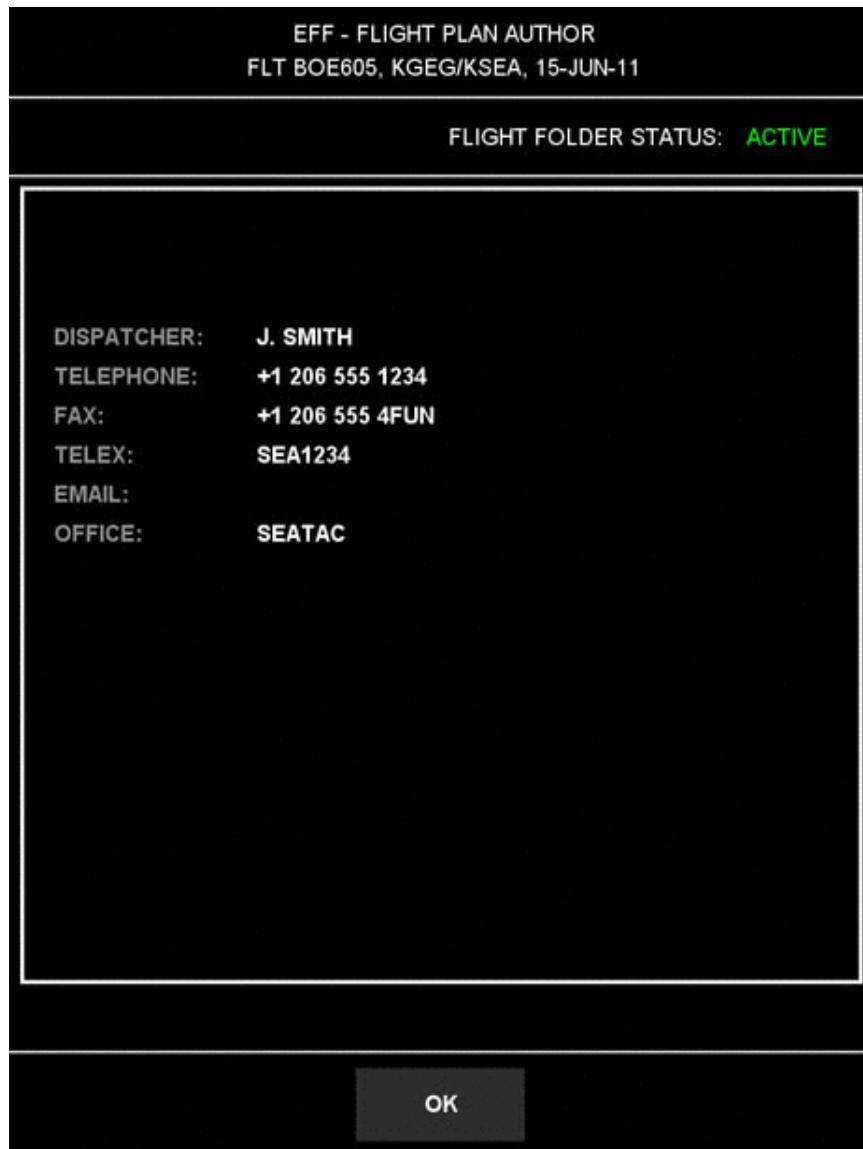
- Select the “i” icon in the flight information row to view all of the information that your organization supplied with the flight plan.

EFF - FLIGHT INFORMATION	
FLT BOE605, KGEG/KSEA, 15-JUN-11	
FLIGHT FOLDER STATUS: ACTIVE	
FLT:	BOE605
REGN:	CISLAB8
FLT DATE:	15-JUN-11
STD:	15-JUN-11/1745z
STA:	15-JUN-11/1840z
ORIGIN:	KSEA
DEST:	KGEG

OK

Viewing flight information

- Select the “i” icon in the author row to view all of the author information that your organization supplied with the flight plan.



Viewing author information

Select **OK** to close these pages and return to the EFF – FLT PLAN HEADER page.

Understanding How EFF Uses the Fuel Adjustments Data

You can change the Zero Fuel Weight (ZFW) or Arrival Fuel on the FUEL & WEIGHTS page. If the FLIGHT PLAN HEADER page provides fuel adjustment parameters for ZFW, any changes that you make to your actual ZFW or actual arrival fuel values in the FUEL & WEIGHTS page will be affected by those fuel adjustment parameters, and any changes that you make to these values affect the total calculations.

NOTE: Zero Fuel Weight is based on either the structural weight or the operational weight of the aircraft—whichever value is provided. If both values have been provided, the value that appears in the ZFW field is the lower of these two values.

Changes that you make to certain fuel and weight parameters can affect RAMP WT. Your organization can define a limit regarding the amount that the calculated RAMP WT can exceed the planned RAMP WT.

If changes that you make to fuel and weight parameters cause the ramp weight to exceed the defined limit, the application displays a message that prompts you to request a new flight plan. In the following example message, the amount by which the calculated or manually entered RAMP WT can exceed the planned value is 1,000:



Ramp Weight Threshold Exceeded message

The following section describes how EFF calculates fuel and weights values when you make changes to the Extra or Additional Fuel, ZFW, or Arrival Fuel values.

Changing Extra or Additional Fuel

In this simplified example, you will see how EFF takes into account any changes that you make to the Extra or Additional Fuel values to adjust other affected parameters.

Assume that the following figure illustrates your initial conditions.

EFF - FUEL & WEIGHTS				
FLT BOE883, YMML/WSSS, 03-AUG-13				
FLIGHT FOLDER STATUS: SIGNED				
	PLAN	TIME	LIMIT OP LIMIT	ACTUAL
ZFW	127280.0		175000.0	127280.0
TOF	52693.0	0926		52693.0
TOW	180973.0		OP LIMIT 190500.0	179973.0
TRIPFUEL	42210.0	0727		42210.0
LW	138763.0		187000.0	137763.0
EXTRA			Add reason	
CONT REDISP	266.0	0013		266.0
ALTFUEL			YBMA ➤	10217.0
ETOPFUEL				
RESFUEL				
TAXIFUEL	400.0	0016		400.0
ARRFUEL				
RAMPFUEL	53093.0	0942		53093.0
RAMPWT	180373.0			180373.0

SHOW MENU ➤

< FLT TIME SUMMARY ➤ WAYPOINTS >

Initial Conditions

EFF has copied all estimated/plan values into the ACTUAL column because the assumption is that you will use the values that have been precalculated by your dispatcher unless you need to change them.

In this example, because of changing conditions, you need to carry 2000.0 units more fuel for the flight. When you make the change to add extra fuel, EFF recalculates affected parameters. In this example, the takeoff fuel (TOF) and ramp fuel (RAMPFUEL) are adjusted as follows:

$$\text{TOF} = \text{TRIPFUEL} + \text{ALT FUEL (YBMA)} + \text{EXTRA fuel}$$

$$\text{RAMPFUEL} = \text{TOF} + \text{taxi fuel}$$

See the following figure.

EFF - FUEL & WEIGHTS				
FLT BOE883, YMML/WSSS, 03-AUG-13				
FLIGHT FOLDER STATUS: SIGNED				
	PLAN	TIME	LIMIT OP LIMIT	ACTUAL
ZFW	127280.0		175000.0	127280.0
TOF	52693.0	0926		54693.0
TOW	180973.0		OP LIMIT 190500.0	181973.0
TRIPFUEL	42210.0	0727		42210.0
LW	138763.0		187000.0	139763.0
EXTRA			Add reason	
CONT REDISP	266.0	0013		266.0
ALTFUEL			YBMA ➤	10217.0
ETOPFUEL				
RESFUEL				
TAXIFUEL	400.0	0016		400.0
ARRFUEL				
RAMPFUEL	53093.0	0942		55093.0
RAMPWT	180373.0			182373.0

SHOW MENU ➤
 < FLT TIME SUMMARY ➤
 WAYPOINTS >

Adjusted takeoff fuel (TO FUEL) and block fuel (BLK FUEL)

NOTE: If you reduce a preset amount of the plan/estimated Extra or Additional Fuel, EFF will take this reduction into account and adjust the takeoff fuel and ramp fuel values accordingly.

How ZFW Adjustment Data Affects Fuel and Weight Values

The ZFW adjustment data affects fuel and weight values in two ways: when you change the ZFW and when you change the arrival fuel. This section describes each situation separately.

ZFW Adjustments

Some flight plans provide impacts to trip fuel if the Zero Fuel Weight (ZFW) is changed. These impacts are provided to help flight crews quickly determine any changed fuel requirements for the flight. EFF uses

these simplified adjustments to calculate affected parameters if you change your ZFW. (For EFF, these fuel adjustments are provided on the FLIGHT PLAN HEADER page.)

Assume that the data in the following figure represents your plan/estimated data.

EFF - FUEL & WEIGHTS				
FLT BOE609, KGEG/KSEA, 03-AUG-13				
FLIGHT FOLDER STATUS: ACTIVE				
	PLAN	TIME	LIMIT	ACTUAL
ZFW	337310		385810	337310
TOF	111629	0145		111629
TOW	448939		589740	448939
TRIPFUEL	100310	0045		100310
LW	348629		OP LIMIT 363760	348629
EXTRA	i 7055	0037	Add reason	7055
CONT 20M	1100	0020		1100
ALTFUEL (KBFI)	3164	0008	KBFI ►	3164
ETOPFUEL				
RESFUEL				
TAXIFUEL	1100	0005		1100
ARRFUEL	14513			14513
RAMPFUEL	112729			112729
RAMPWT	450039			450039

Plan/Estimated Data

Also, assume that your dispatcher has prepared the flight plan with the following fuel adjustments (which will appear on the FLIGHT PLAN HEADER page) in case of changed ZFW.

FUEL ADJUSTMENTS:

ZFW CHANGE:	1000.0	LB	TRIPFUEL	732	LB
	-1000.0	LB	TRIPFUEL	-710	LB
FL CHANGE:	-2000.0	FT	TRIP	-174	LB
			TIME	1	S
	-4000.0	FT	TRIP	2057.0	LB
			TIME	3	S

Planned Fuel Adjustments

The flight plan provides simple adjustments for ZFW increases or decreases. What this data shows is that for every 1000 lb of ZFW increase from the plan, you need to increase your trip fuel by 732 lb to ensure you arrive with required reserves; conversely, for every 1000 lb of ZFW decrease, you can decrease your trip fuel by 710 lb.

NOTE: For EFF to be aware of these adjustments, the label used for trip fuel ("TRIPFUEL") in the FUEL ADJUSTMENTS area must match the label for trip fuel on the FUEL AND WEIGHTS page.

For this exercise, assume that your ZFW has increased by 1000 lb. According to the adjustment values in the example above, an increase of ZFW by 1000 lb requires an increase of trip fuel by 732 lb. When the ZFW change drives a change in trip fuel, a resulting effect occurs on your takeoff fuel:

$$\text{Takeoff Fuel (TOF)} = \text{TRIPFUEL} + \text{ALT FUEL} + \text{EXTRA fuel}$$

Because the Takeoff Weight (TOW) = TOF + ZFW, TOW increases by 1732 lb (1000 lb from the ZFW change, plus 732 lb for the TRIPFUEL change).

And because Landing Weight (LW) = TOW – TRIPFUEL, LW increases by 1000 lb.

The ramp fuel (RAMPFUEL) and ramp weight (RAMPWT) values are also recalculated. The following figure shows the resulting values caused by the increase of ZFW and fuel adjustments to account for that change.

EFF - FUEL & WEIGHTS			
FLT BOE609, KEGE/KSEA, 03-AUG-13			
FLIGHT FOLDER STATUS: ACTIVE			
PLAN	TIME	LIMIT	ACTUAL
ZFW	337310	385810	338310
TOF	111629	0145	112361
TOW	448939	589740	450671
TRIPFUEL	100310	0045	101042
LW	348629	OP LIMIT 363760	349629
EXTRA	7055	0037	7055
CONT 20M	1100	0020	1100
ALTFUEL (KBFI)	3164	0008 KBFI ➤	3164
ETOPFUEL			
RESFUEL			
TAXIFUEL	1100	0005	1100
ARRFUEL	14513		14513
RAMPFUEL	112729		113461
RAMPWT	450039		451771

As a result of the change to ZFW, the application adjusts the values for:
 TOF
 TOW
 TRIPFUEL
 LW
 RAMPFUEL
 RAMPWT

SHOW MENU ➤

< FLT TIME SUMMARY WAYPOINTS >

Recalculated values

EFF adjusts the trip fuel proportionally to the amount by which ZFW has changed. In the previous example, if the increase had been 500 lbs, the trip fuel adjustments would be 366 lbs.

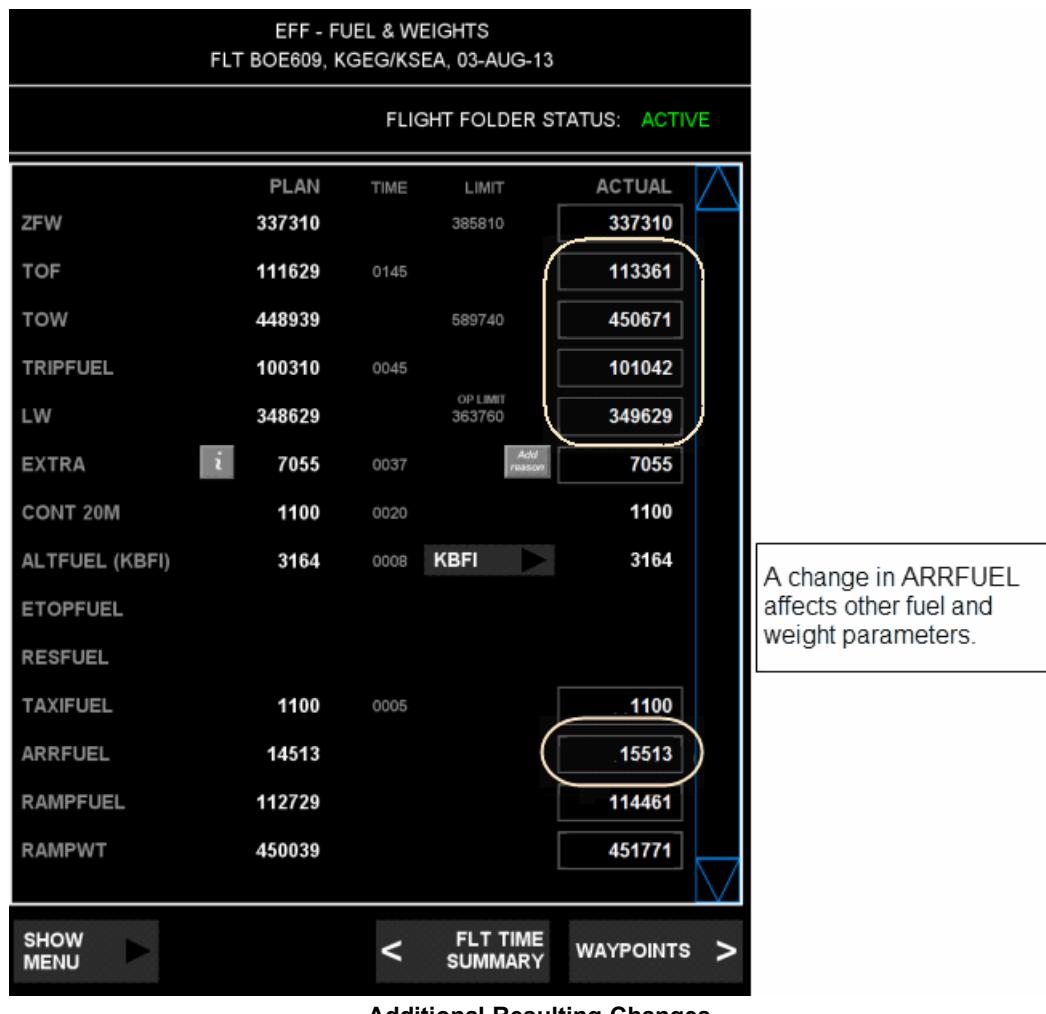
Arrival Fuel Changes

In addition to adjusting for changes to ZFW, EFF adjusts the trip fuel when you change your arrival fuel.

NOTE: EFF does not use arrival fuel (ARR FUEL) values to calculate the trip fuel; rather, EFF uses the difference in fuel between the plan and your intended actual arrival fuel to determine the additional trip fuel or burnoff needed to arrive at your destination with your desired fuel amount.

By definition, your arrival fuel is the amount with which you want to arrive at your destination. Therefore, if you want to arrive with more fuel than what the plan was based on, you need to account for the fuel that you will need to burn to haul the additional arrival fuel to your destination.

Assume that the ARR FUEL value planned for you is **14513 lbs**, as indicated in the previous example. Now, assume that you want to have 1000 lbs more fuel at your destination than described by the plan. In EFF, you enter **15513** (the sum of 14513 and 1000) in the ACTUAL input field for ARR FUEL. This change now results in changes to the values for TRIPFUEL, takeoff fuel (TOF), TOW, ramp fuel (RAMPFUEL), and ramp weight (RAMPWT). See the results in the following figure.



If both the ZFW and ARR FUEL are changed, the ZFW change and the ARRFUEL change adjustments are each made on affected parameters. See the following figure.

EFF - FUEL & WEIGHTS FLT BOE609, KGEG/KSEA, 03-AUG-13				
FLIGHT FOLDER STATUS: ACTIVE				
	PLAN	TIME	LIMIT	ACTUAL
ZFW	337310		385810	338310
TOF	111629	0145		114093
TOW	448939		589740	452403
TRIPFUEL	100310	0045		101774
LW	348629		OP LIMIT 363760	350629
EXTRA	i 7055	0037	Addl reason	7055
CONT 20M	1100	0020		1100
ALTFUEL (KBFI)	3164	0008	KBFI ►	3164
ETOPFUEL				
RESFUEL				
TAXIFUEL	1100	0005		1100
ARRFUEL	14513			15513
RAMPFUEL	112729			115193
RAMPWT	450039			453503

SHOW
MENU



< FLT TIME
SUMMARY

WAYPOINTS >

ZFW Change and ARRFUEL Change Adjustments

Working with Flight Time Summary Information

The EFF – FLT TIME SUMMARY page displays the planned and actual Out, Off, On, In (OOOI), and Taxi times. Your organization defines the attributes that appear on this page, and some of the values are editable. The application obtains the actual values from avionics or from your inputs and uses them to calculate flight time and block time for the flight in Zulu (z) time.

The dates in the date field correspond to the current system date. Select the left or right arrow to modify these dates. You can also enter a date directly in the date field.

If you enter an erroneous value, the application displays the following notification:

THE DATE IN <FIELD NAME> IS LESS THAN THE FLIGHT ORIGIN DATE. PLEASE CORRECT.

If the EFB is connected to avionics, EFF uses the weight-on-wheels (WOW) discrete to capture takeoff (Off) and landing (On) times. You can enter the Off or On times manually. EFF uses the actual takeoff time on this page to calculate a revised estimated time of arrival (RETA) at the waypoints in the flight plan.

The date fields on this page will equal the airplane's date value. You can change these values by using the right or left arrows or by manually typing a date in the input field; the change is saved as long as it meets the appropriate criteria for verification.

EFF does not acquire the Out and In times, so you must enter these values manually.

Note that if you increment the date of an OOOI event, the application increments any subsequent OOOI event as well. If a particular time value is blank, EFF does not permit you to enter a DATE value that occurs *before* a preceding OOOI event. Instead, the application displays the following message:

THE ENTERED <FIELD NAME> DATE IS LESS THAN THE <PRECEDING OOOI FIELD> DATE.
PLEASE CORRECT.

NOTE: If you enter a date and time combination that does not require a date change to preserve integrity, EFF does not increment date values for subsequent OOOI events. For example, if you enter a time for an OOOI event that has a preceding event with a blank time field, EFF checks the value in the date field only to ensure that chronological order is preserved.

If actual flight time, which is the difference between the off and on times, equals or exceeds 24 hours, EFF displays the value in amber. Similarly, if block time equals or exceeds 24 hours, the value appears in amber.

EFF - FLT TIME SUMMARY		
FLT BOE605, KGEK/KSEA, 15-JUN-11		
FLIGHT FOLDER STATUS: PENDING		
OUT	EST 1745z	ACTUAL [] [] 09-SEP-2011 []
TAKEOFF	1750z	[] 09-SEP-2011 []
LANDING	1828z	[] 09-SEP-2011 []
IN	1833z	[] 09-SEP-2011 []
FLT TIME	0038	--:--
BLK TIME	0048	--:--

SHOW MENU 

<  **FLT PLAN HEADER**  FUEL & WEIGHTS >

EFF – FLT TIME SUMMARY page

If necessary, select **SHOW MENU > SHOW KYBD** to display the virtual keyboard and update the values on this page.

Working with Fuel & Weights Information

Use the information on the EFF – FUEL & WEIGHTS page to evaluate planned fuel and weights flight data and make any necessary adjustments. You might need to make adjustments to account for last-minute changes or changing conditions. Your organization defines the attributes that appear on this page. EFF segregates the information into the estimated (or plan) values, duration times, limits (operational and structural weights uploaded from the flight plan), and the actual values.

When the flight folder is uploaded to the EFB, EFF copies the estimated values to the Actual column. (The assumption is that you will depart with plan data unless you have a reason to change these values.) EFF uses the actual takeoff fuel to assign the revised estimated fuel onboard for all waypoints in the flight plan on the waypoints page. If you change the actual takeoff fuel (or change another parameter that affects a takeoff fuel change), EFF uses the new value to calculate revised estimated fuel onboard values for the waypoints.

If the actual weight values exceed the provided limit weights, EFF indicates the actual values in amber. Depending on your organization's requirements, EFF might require that the airplane be on the ground before it grants access to the fuel and weights data in the active flight folder. If your organization configures this setting, the input fields are locked out after the airplane is off the ground, and you are unable to make changes.

If you change the ZFW, EFF calculates new fuel and weight values as appropriate. If you add extra or additional fuel at departure, EFF adjusts takeoff fuel, takeoff weight, landing weight, and ramp fuel by the same amount.

If the operational flight plan specifies more than one alternate airport (for example, an arrival alternate, a primary arrival alternate and a destination alternate), you can choose another alternate airport from a list. When you choose an airport other than the alternate airport currently shown on the FUEL & WEIGHTS page, EFF recalculates fuel and weight parameters accordingly. Note that if you choose an airport other than the *primary* arrival alternate or the *primary* destination alternate, the airport code appears in green. If the operational flight plan does not specify a primary destination or arrival alternate, the list provides an option to specify a “no alternates” condition. If you choose this option, EFF labels this row “NO ALTS.”

EFF - FUEL & WEIGHTS				
FLT BOE609, KGEG/KSEA, 03-AUG-13				
FLIGHT FOLDER STATUS: ACTIVE				
	PLAN	TIME	LIMIT	ACTUAL
ZFW	337310		385810	337310
TOF	111629	0145		114122
TOW	448939		589740	451432
TRIPFUEL	100310	0045		100310
LW	348629		OP LIMIT 363760	351122
EXTRA	i 7055	0037	Add reason	7055
CONT 20M	1100	0020		1100
ALTFUEL (KBFI)	3164	0008	KPDX ►	5657
ETOPFUEL				
RESFUEL				
TAXIFUEL	1100	0005		1100
ARRFUEL	14513			14513
RAMPFUEL	112729			115222
RAMPWT	450039			452532
SHOW MENU ►		<	FLT TIME SUMMARY	WAYPOINTS >

EFF – FUEL & WEIGHTS page

Sending Final Fuel and Weight Figures to Ground

After you finish adjusting the various fuel and weight parameters, you can send the final figures to ground. Note that the flight plan must be either signed or active, and the aircraft must be on the ground.

To send final figures to ground:

- On the EFF – Fuel and Weights page, select **Show Menu**, and then select **Send Final Figures**.

If the Send Final Figures selection is unavailable (cyan), either you have not modified any of the parameters since fuel and weight data was last sent to ground or the application does not sense weight on wheels.

Understanding Extra Fuel Build Up

Your organization might include information about extra or additional fuel buildup.

To add a reason for the extra or additional fuel change:

1. Select **Add reason**.
2. Enter the applicable information.
3. Select **CONFIRM** to save your remarks.

To review the Extra Fuel Build Up information, select the “i” icon in the extra fuel buildup row. (In the EFF – FUEL & WEIGHTS example page, that row is the EXTRA row.)

EFF displays the EFF – EXTRA FUEL BUILD UP page.

EFF - EXTRA FUEL BUILD UP
FLT BOE609, KGEK/KSEA, 03-AUG-13

FLIGHT FOLDER STATUS: **ACTIVE**

EST

EXTRA FUEL: 2205 TIME: 0012

REASON: WX ALLOWANCE AT KSEA

EXTRA FUEL: 1102 TIME: 0006

REASON: ATC

EXTRA FUEL: 3748 TIME: 0019

REASON: EXTRA HOLD AT KSEA

TOTAL EXTRA: 7055 (POSSIBLE: 26455)

OK

EFF – EXTRA FUEL BUILD UP page

Depending on your organization's needs, this page might display the following information:

- Estimated extra or additional fuel
 - Reasons for the extra or additional fuel
 - Estimated endurance for the extra or additional fuel
 - Total amount of extra or additional fuel
 - Possible extra or additional fuel that the airplane could uplift

Select **OK** to close the EFF – EXTRA FUEL BUILD UP page.

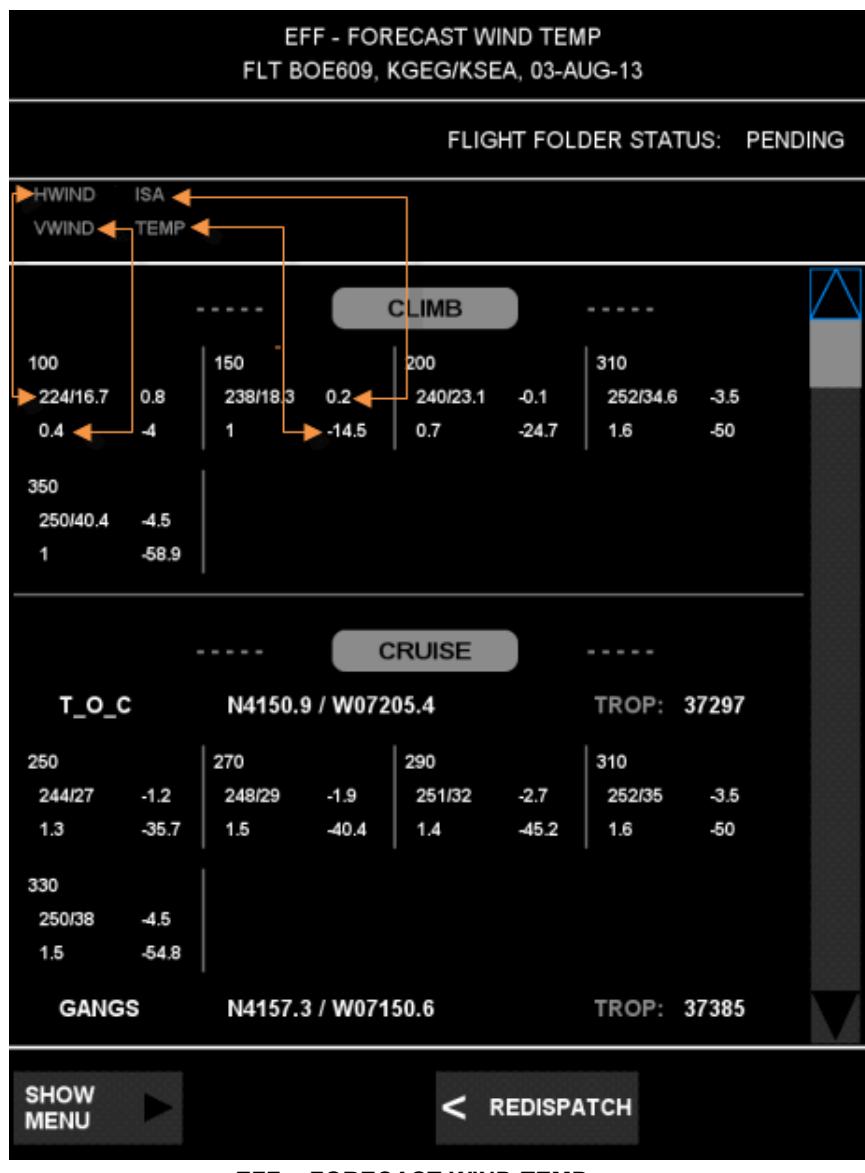
Viewing Forecast Winds and Temperatures Information

The EFF – FORECAST WIND TEMP page displays detailed information about the winds and temperatures along your route of flight. Forecast wind and temperature data resides in the Upper Air Data file, an XML file within the loaded flight folder. If no Upper Air Data file is available for the flight, the FORECAST WIND TEMP button is accompanied by a “NO CONTENT” label.

Depending on the data available, the page is divided into three discrete sections: Climb, Cruise, and Descent. For each section, data is provided for multiple flight levels. The Climb and Descent sections contain a single block of wind and temperature information for applicable flight levels. For the Cruise section, specific wind and temperature data is shown for each waypoint in the route. (If a particular waypoint has no associated wind and temperature data, EFF displays a note indicating that no data is available for the waypoint.)

Your organization can specify up to four types of data from the Upper Air Data file. In the example that follows, the four data types are Horizontal Wind, Vertical Wind, International Standard Atmosphere, and Temperature.

In the Cruise section, each waypoint includes the name of the waypoint, its lat/long coordinates, and its tropopause value. For each applicable flight level, EFF displays the wind and temperature values that your organization specifies.



NOTE: You can also view wind and temperature information for each waypoint directly from the EFF – WAYPOINTS page.

Viewing Waypoints Information

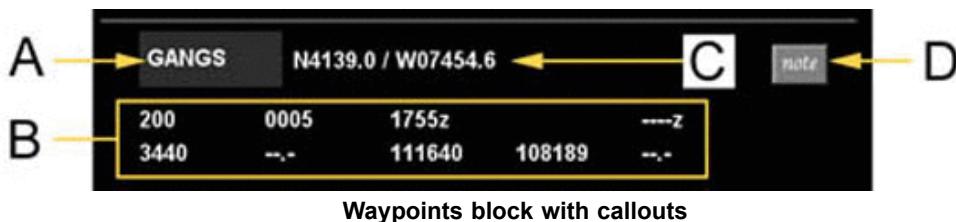
The EFF – WAYPOINTS page displays the point-to-point route described in the flight plan. If the flight plan supplies the information, EFF displays the waypoint name and latitude/longitude position. When the aircraft is en route, this page shows any changes or updates to the waypoints and displays the waypoint data gathered from avionics or entered by the flight crew. Each waypoint matches a precise location.

For EFF to gather data from avionics, the flight plan must be ACTIVE.

EFF - WAYPOINTS					
FLT BOE607, KGEG/KSEA, 29-JUN-12					
FLIGHT FOLDER STATUS: ACTIVE					
FL	ZTIME	ETA	RETA	ATA	DTIME
BURNOFF	ACT WT	EFOB	EFOBC	AFOB	FODDIFF
KGEG	N5002.0 / E00834.2				
0001	1750z	1753z	---	---	z
--.-	115080	111629	---	---	
GANGS	N4139.0 / W07454.6				
200	0005	1755z	1758z	---	z
3440	--.-	111640	108189	---	
ZOOMR	N4139.0 / W07454.6				
250	0002	1757z	1800z	---	z
1675	--.-	109965	106514	---	
SUBDY	N4139.0 / W07454.6				
300	0003	1800z	1803z	---	z
1390	--.-	108580	105124	---	
REDISPATCH DECISION POINT					
SHOW MENU	▶	<	FUEL & WEIGHTS	ATC FLIGHT PLAN	>

EFF – WAYPOINTS page

Each waypoint is contained within a waypoint block.



The callouts illustrate the following elements:

A—Waypoint button, which displays the waypoint name if the flight plan contains that information

B—Waypoints attributes

C—Waypoint latitude/longitude (if the flight plan contains that information)

D—Comments associated with a waypoint. If a waypoint has comments, EFF displays a NOTE button in the waypoint block. Select the button to view the information.

EFF displays waypoint functions, if they apply, to help you identify certain properties about a specific waypoint. For example, a waypoint can designate the boundary of an FIR, an ETOPS entry or exit point, a decision point of one kind or another, and so on.

NOTE: Your organization can configure EFF to display ETOPS critical positions to be interspersed among the route's waypoints.

The following table lists the function values and the function names as they appear on the EFF – WAYPOINTS page.

Waypoint Functions	
Function Value String	Display
AirspaceBoundary	FIR BOUNDARY
OceanicAirspaceBoundary	OCEANIC BOUNDARY
EtopsEntryPosition	BEGIN ETOPS SECTOR
EtopsEntry	BEGIN ETOPS SECTOR
EtopsExitPosition	END ETOPS SECTOR
EtopsExit	END ETOPS SECTOR
RedispatchDecisionPoint	<Reduced Reserve> DECISION POINT
PointOfEqualTime	ETP
DriftDownDecisionPoint	DRIFT DOWN DECISION POINT
DepressurizationDecisionPoint	DEPRESS DECISION POINT

EFF - WAYPOINTS										
FLT BOE886, YMML/WSSS, 12-NOV-11										
FLIGHT FOLDER STATUS: PENDING										
FL	ZTIME	ETA	RETA	ATA	DTIME					
BURNOFF	ACT WT	EFOB	EFOBC	AFOB	FOBDIFF					
400	--.-	20209	21000.0	--.-						
END ETOPS SECTOR										
-----	-----	-----	-----	-----	-----					
EXIT	S3017.2 / E13518.9									
36115										
BEGIN ETOPS SECTOR										
-----	-----	-----	-----	-----	-----					
ENTRY	S3017.2 / E13518.9									
36115										

Examples of Waypoint Functions

The information on the WAYPOINTS page is read-only. Scroll to view additional waypoints.

The two rows just above the waypoints information identify the attributes that your organization has configured to define your waypoints. The first row displays the attributes for the first row of parameters (designated in yellow in the following example page). The second row displays the attributes for the second row of parameters (designated in green in the following example page). EFF can display up to 12 attributes.

EFF - WAYPOINTS FLT BOE605, KGEK/KSEA, 15-JUN-11					
FLIGHT FOLDER STATUS: ACTIVE					
FL	ZTIME	ETA	RETA	ATA	DTIME
BURNOFF	ACT WT	EFOB	EFOBC	AFOB	FODIFF
KGEK N5002.0 / E00834.2					
0001	1750z		---	z	
--	115080	111629	--	--	
GANGS N4139.0 / W07454.6					<small>note</small>
200	0005	1755z		----	z
3440	--	111640	108189	--	--
ZOOMR N4139.0 / W07454.6					
250	0002	1757z		----	z
1675	--	109965	106514	--	--
SUBDY N4139.0 / W07454.6					
300	0003	1800z		----	z
1390	--	108580	105124	--	--
----- REDISPATCH DECISION POINT -----					
SHOW MENU >		< FUEL & WEIGHTS	ATC FLIGHT PLAN >		

Waypoints attributes and their corresponding values

EFF applies the following logic for displaying the attributes for each waypoint:

- If no value exists for an attribute in the uploaded flight plan, EFF displays a blank space.
- If EFF receives the value from the aircraft systems, or if the flight crew enters the value, EFF displays it in green.
- If the attribute corresponds to a value that is reserved for flight crew or aircraft system input, EFF displays dashes until a value is available.

EFF calculates values for the DIFF (difference) column based on actual versus estimated time over waypoint, and for actual versus estimated fuel on board. EFF displays the difference value as positive or negative based on whether the actual value is greater or less than the estimated value, respectively. If the actual fuel on board is less than the estimated fuel on board, EFF displays the difference in amber.

The following options associated with the **SHOW MENU** button on the EFF – WAYPOINTS page are specific to waypoints.

- **FLT PLAN WAYPOINTS**—Displays only the waypoints that were originally uploaded with the flight plan.

This menu option appears if the flight folder is ACTIVE and contains the signed/activated flight plan. When you select this option, the menu item label changes to FLIGHT PROGRESS.

- FLIGHT PROGRESS—Displays the original flight plan with the modifications or additions to the waypoints. When you select this option, the menu item label changes to FLT PLAN WAYPOINTS.
- ACTIVE WAYPOINT—Scrolls the list of waypoints on the page so that the active waypoint appears second from the top of the page. The preceding waypoint appears at the top.

NOTE: Depending on your organization's settings, ETOPS critical position points might appear on this page. ETOPS critical positions are sorted among the flight plan waypoints based on a comparison of the ETOPS critical time to the cumulative flight time of waypoints. For example, to determine where to place an ETOPS entry position, the application first compares the critical time value with the cumulative flight time of all waypoints. EFF then inserts the name of the critical position between the waypoint whose time is greater than the critical time and the waypoint whose time is less than the critical time.

EFF - WAYPOINTS					
FLT BOE513, YMML/WSSS, 17-JUN-11					
FLIGHT FOLDER STATUS: PENDING					
FL	ZTIME	ETA	RETA	ATA	DTIME
BURNOFF	ACT WT	EFOB	EFOBC	AFOB	FODIFF
YMML	S3740.4 / E14450.6				
100				----Z	
	--.-	51913	52693.0	--.-	
KEPPA	S3647.8 / E14358.5				
7558	0012			----Z	
3338	--.-	48575	49355.0	--.-	
ROBET	S3545.4 / E14231.0				
10973	0012			----Z	
1869	--.-	46706	47486.0	--.-	
----- BEGIN ETOPS SECTOR -----					
ENTRY	S3017.2 / E13518.9				
	43115				
WR	S3108.6 / E13648.5				
SHOW MENU		< FUEL & WEIGHTS	ATC FLIGHT PLAN		

Waypoints showing ETOPS critical points

You can view additional information about a waypoint, including wind and temperature information and other detailed information. To view additional information about a specific waypoint, select a waypoint button. EFF displays two options: EFF – WAYPOINT DETAILS and FORECAST WIND TEMP.

Viewing Waypoint Details

When you choose EFF – WAYPOINT DETAILS for a specific waypoint, the application displays the following page:

EFF - WAYPOINT DETAILS			2 / 15
FLT BOE605, KGEK/KSEA, 15-JUN-11			
FLIGHT FOLDER STATUS: ACTIVE			
GANGS GANGS SEQUENCE 2	N4139.0 / W07454.6	NOTE	
EWT	AWT	DIFF	
A ALT	<input type="text"/>	ATA	<input type="text"/>
G DIST	076	FREQ	
E MACH	0.82	A MACH	<input type="text"/>
E TAS	340	A TAS	<input type="text"/>
E FLTIM		A FLTIM	<input type="text"/>
E WIND		A WIND	<input type="text"/>
E IAS	270	A IAS	<input type="text"/>
CALCFOB		ISA	7.367
AWY	J95	AFOB	<input type="text"/>
REMARKS: <input type="text"/>			
SHOW MENU 		ACCEPT	

EFF – WAYPOINT DETAILS page

The information on the EFF – WAYPOINT DETAILS page depends on your organization's settings. You must sign or activate the flight plan to enable the input fields for editing.

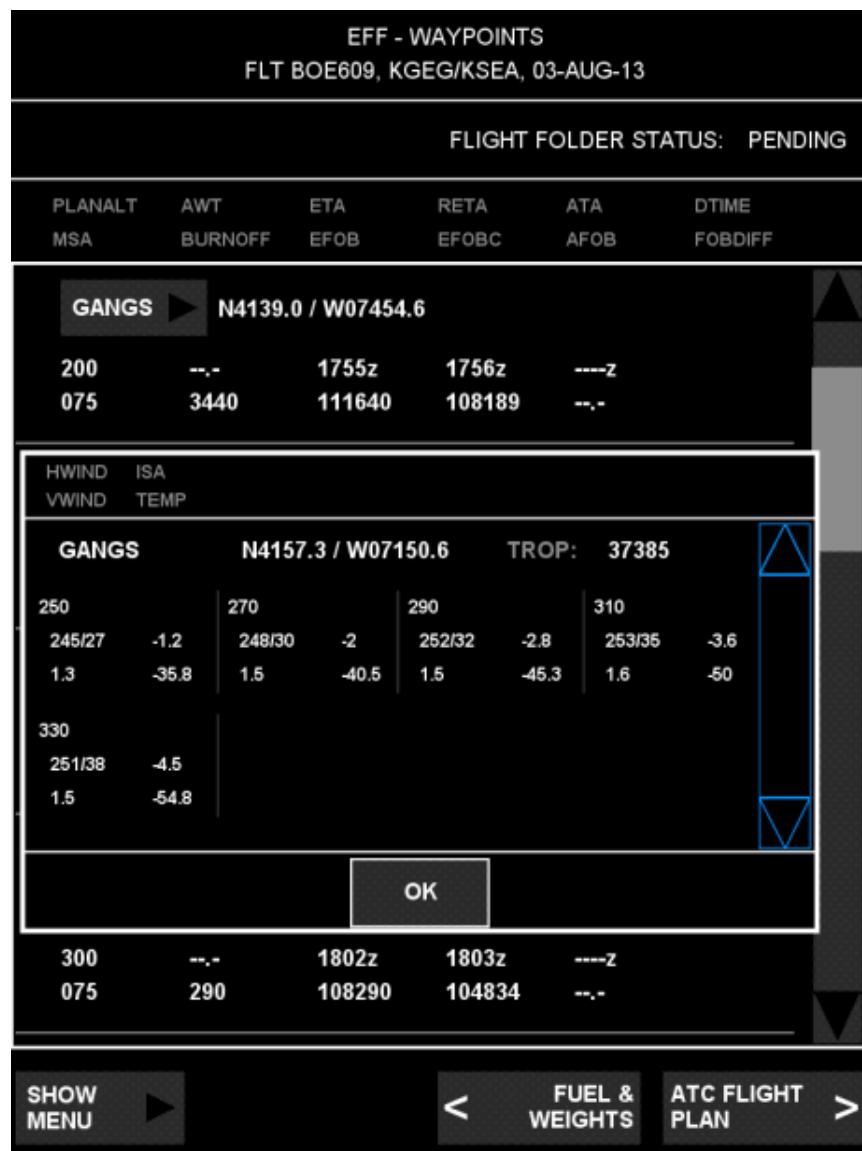
Use the **PGUP** and **PGDN** bezel buttons to step through waypoints in the flight plan. EFF displays a "Page X/Y" indicator to the right of the EFF – WAYPOINTS DETAILS label. This indicator identifies which waypoint is currently displayed (the "X" value) and how many total waypoints the flight plan contains (the "Y" value).

For more information about waypoints, see the "Working with Waypoints" section."

NOTE: If a parameter (time over waypoint or fuel on board) is missing either an actual value or an estimated value, the application displays a series of dashes in the respective DIFF column.

Viewing Wind and Temperature Information for a Specific Waypoint

When you choose EFF – WIND AND TEMP for a specific waypoint, the application displays a box within the EFF – WAYPOINTS page. This box shows wind and temperature information for the specific waypoint. Your organization specifies the specific wind and temperature information that appears in this box. For more information about the information that appears and the source from which it is derived, see the *Viewing Forecast Winds and Temperatures Information* section.



EFF – WAYPOINT DETAILS page with wind and temperature information box

Viewing ATC Flight Plan information

Use the EFF – ATC FLIGHT PLAN page to view the flight plan that was filed with ATC. EFF displays the contents of the ATC flight plan on one scrollable page. This information is not editable or searchable.

EFF - ATC FLIGHT PLAN
FLT BOE605, KGEKG/KSEA, 15-JUN-11

FLIGHT FOLDER STATUS: **ACTIVE**

ATC FLT PLAN:

FF GEGDZMFP SEAYZMFP

SEABO7X

GEGXZQZX GEGXZOZX SEAXZQZX SEAMZQZX BFIMZQZR

FPL-BOE605-IS

B772/H-SHIJPRXWYZ/SD

KGEG1745

N0496F220 KGEG..GANGS V2-448 MWH V448 YKM V4 CHINS6 KSEA

KSEA0023 KBFI

EET/KGEG0753 KMWH0805 KYKM0815 KSEA0832

REG/CISLAB8

SEL/JQLR

OPR/BOE

DOF/110615

DAT/SV

NAV/RNAV1 RNAV5 RNP10 RNVD1E2A1

RVR/200

RMK/TCAS

SHOW MENU ➤
< **WAYPOINTS**
ETOPS SUMMARY >

EFF – ATC FLIGHT PLAN

Viewing ETOPS Summary Information

The EFF – ETOPS SUMMARY page displays ETOPS-specific information, such as critical positions and suitable en route alternate airports. If the information is contained in the flight plan, the page identifies the ETOPS rules time (for example, 180 minutes) to the right of the attributes. Your organization defines the attributes that appear on this page.

NOTE: Depending on your organization's settings, ETOPS critical position points might appear on the EFF – WAYPOINTS page.

EFF - ETOPS SUMMARY					
FLT BOE883, YMML/WSSS, 03-AUG-13					
FLIGHT FOLDER STATUS: SIGNED					
ALT MSA	CRTIME CRFUEL	EFOB DISTREM	ICEFUEL TIMEREM	AVGWIND AVG ISA	180MIN
ENTRY	S3017.2 / E13518.9				
ETP-1D	S3023.9 / E13552.2				
YMML	PROC: VRBL (420)				
1646	0124	42115	690		
		1157	0148	10	
YBMA	PROC: (420)				
1189	0124	42115	689		
		1143	0148	0	
ETP-2D	S2537.8 / E13019.5				
YBMA	PROC: (420)				
1798	0218	36854	625		
		1089	0143	12	
YNWN	PROC: (410)				
1054	0218	36854	627		
		1004	0143	0	
SHOW MENU	ATC FLIGHT PLAN		ALTERNATES >		

ETOPS SUMMARY page

The information on this page is read-only. Scroll to view additional ETOPS summary information.

ETOPS summary information is contained within an ETOPS block that is specific to each critical position.



ETOPS block with callouts

The callouts illustrate the following page elements:

A—ETOPS alternate airport, which displays the airport name if the flight plan contains that information

B—ETOPS attributes

C—ETOPS critical position latitude/longitude (if the flight plan contains that information)

D—ETOPS procedures information.

The two rows just above the waypoints information identify the attributes that your organization has configured to define your waypoints. The first row displays the attributes for the first row of parameters (designated in yellow in the following example page). The second row displays the attributes for the second row of parameters (designated in green in the following example page). EFF can display up to 10 attributes.

EFF - ETOPS SUMMARY					
FLT BOE513, YMML/WSSS, 17-JUN-11					
FLIGHT FOLDER STATUS: PENDING					
ALT	T REM	CR TIME			
MSA	D REM	CR FUEL	FOB	FUEL	180MIN
ENTRY	S3017.2 / E13518.9				
ETP-1D	S3023.9 / E13552.2				
YMM	PROC: VRBL (420)				
0147	0124				
1646		42115	13496		
YBMA	PROC: (420)				
0147	0124				
1189		42115	13496		
ETP-2D	S2537.8 / E13019.5				
YBMA	PROC: (420)				
0142	0217				
1798		36854	12785		
YNWN	PROC: (410)				
0143	0217				
4654		36854	12785		
SHOW MENU	< ATC FLIGHT PLAN ALTERNATES >				

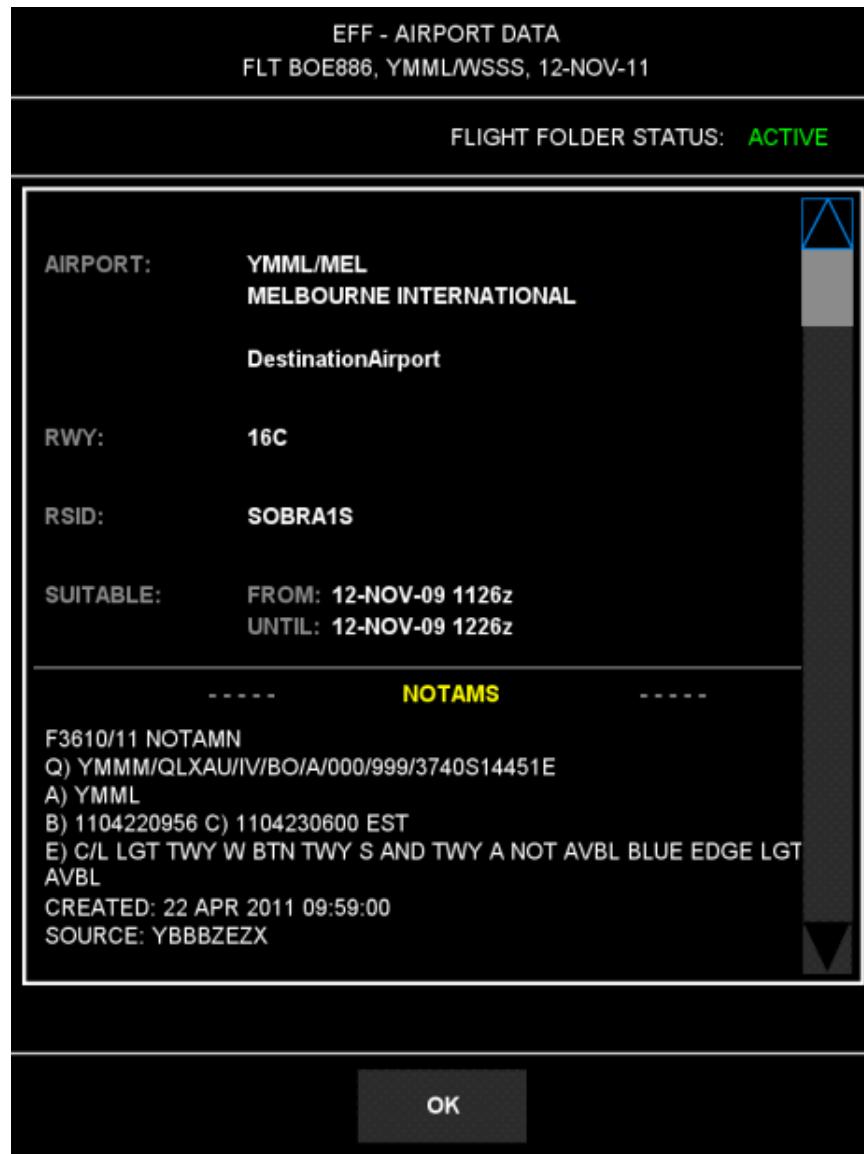
ETOPS summary attributes and their corresponding values

The options associated with the **SHOW MENU** button on the EFF – ETOPS SUMMARY page are specific to the flight plan.

To view details about an ETOPS alternate airport:

1. Select an ETOPS alternate button.

EFF opens the EFF – AIRPORT DATA page. The information on this page depends on the content of your flight plan. If the airport has NOTAMS or textual weather information associated with it, that information appears in the lower portion of the page.



EFF – AIRPORT DATA page

2. Select **OK** to close the EFF – AIRPORT DATA page.

Viewing Alternates Summary Information

The EFF – ALTERNATES SUMMARY page displays the list of destination and departure alternate airports and associated information described in the flight plan. EFF first lists departure alternates; then it lists destination alternates. A double line separates the two alternate types.

EFF - ALTERNATES SUMMARY
FLT BOE607, KGEG/KSEA, 29-JUN-12

FL TEMP TIME FUEL

WIND GDIST

KALW ➤ DEPARTURE ALTERNATE
Wx Diversion

8000	-12	0008	3164
045/20		5	

Diversion to ALW

ROUTE DESCRIPTION:
USED TO SHOW THE DEPARTURE ALTERNATE AIRPORT

KBFI ➤ PRIMARY DESTINATION ALTERNATE
BestOptimized

8000	-12	0008	3164
110/05		5	

Fly to Boeing Field
SEABFI12

ROUTE DESCRIPTION:
DIVERT TO BFI, DIRECT.

KPAE ➤ DESTINATION ALTERNATE
Info

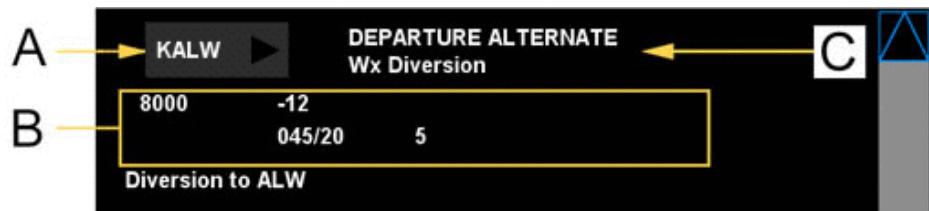
SHOW MENU ➤ < ETOPS SUMMARY ➤ REDISPATCH >

EFF – ALTERNATES SUMMARY page

EFF displays alternates in the following order:

- Takeoff/departure alternate (if nominated by dispatch)
- Primary destination alternate (if nominated by dispatch)
- All other destination alternates (sorted by increasing diversion fuel values)

Each alternate is contained within an alternate block.



Alternate block with callouts

The callouts illustrate the following page elements:

A—Alternate button. When you select this button, the application provides two menu options. You can view either the EFF – AIRPORT DATA page or the EFF – ALTERNATE WAYPOINTS page. If the flight plan does not contain data for a menu selection, the menu selection is deactivated (cyan).

NOTE: In some instances (for example, in the absence of a detailed route), EFF might display only the Airport Data page when you select the Alternate button.

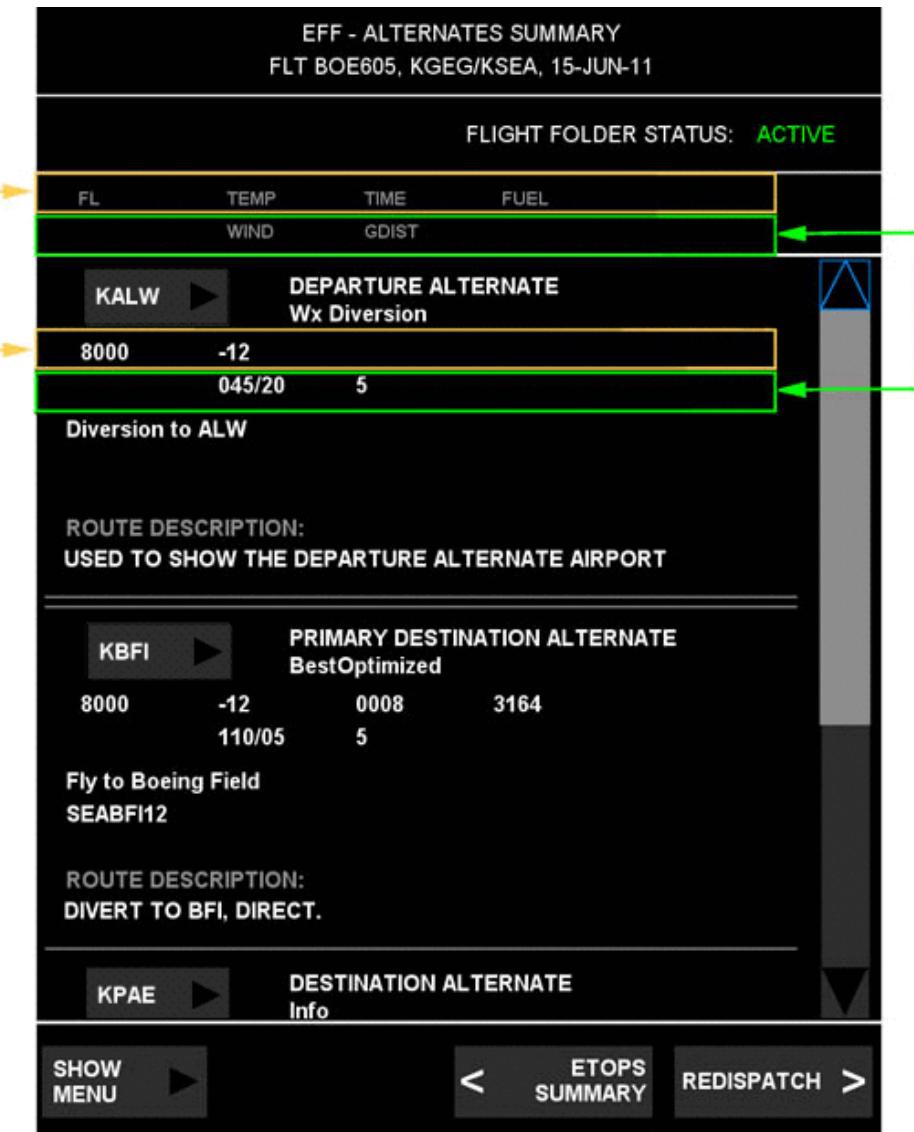
B—Alternate attributes.

C—Airport's function and status as provided in the flight plan.

If your organization chooses to display remarks or a route description, that information appears below the alternate block.

The information on this page is read-only. Scroll to view additional alternates.

The two header rows just above the alternates information identify the attributes your organization has configured to define your alternates. The first row displays the attributes for the first row of parameters (designated in yellow in the following example page). The second row displays the attributes for the second row of parameters (designated in green in the following example page). EFF can display up to 10 attributes.



Alternates attributes and their corresponding values

The options associated with the **SHOW MENU** button on the EFF – ALTERNATES SUMMARY page are specific to the flight plan.

To view details about an alternate:

1. Select an alternate button, and then select either **AIRPORT DATA** or **ALTERNATE WAYPOINTS**.

Depending on your selection, EFF opens either the EFF – AIRPORT DATA page or the EFF – ALTERNATE WAYPOINTS page:

- If you select AIRPORT DATA, the information that appears on the EFF – AIRPORT DATA page depends on the content of your flight plan and can include textual weather information and NOTAM content associated with the airport.

EFF - AIRPORT DATA	
FLT BOE607, KGEG/KSEA, 29-JUN-12	
FLIGHT FOLDER STATUS: SIGNED	
AIRPORT:	KBFI/BFI KING COUNTY INTL - BOEING FIELD
PRIMARY DESTINATION ALTERNATE	
RWY:	10L
STR:	NESTO2
SUITABLE:	FROM: 27-JAN-10 0703z UNTIL: 27-JAN-10 2303z
----- WEATHER -----	
2012/06/25 18:30 KBFI 251723Z 2518/2618 35005KT P6SM BKN100 OVC200 FM252000 31006KT P6SM BKN080 OVC150 FM260300 VRB03KT P6SM BKN060 BKN150 FM261200 18006KT P6SM SCT025 BKN060 BKN150 TEMPO 2614/2618 BKN025 OVC060	
OK	

EFF – AIRPORT DATA page

- If you select ALTERNATE WAYPOINTS, the information that appears on the EFF – ALTERNATE WAYPOINTS page is identical to the information that appears on the EFF – WAYPOINTS page, and the functionality is the same as well. See the “Viewing Waypoints Information” section for more information.



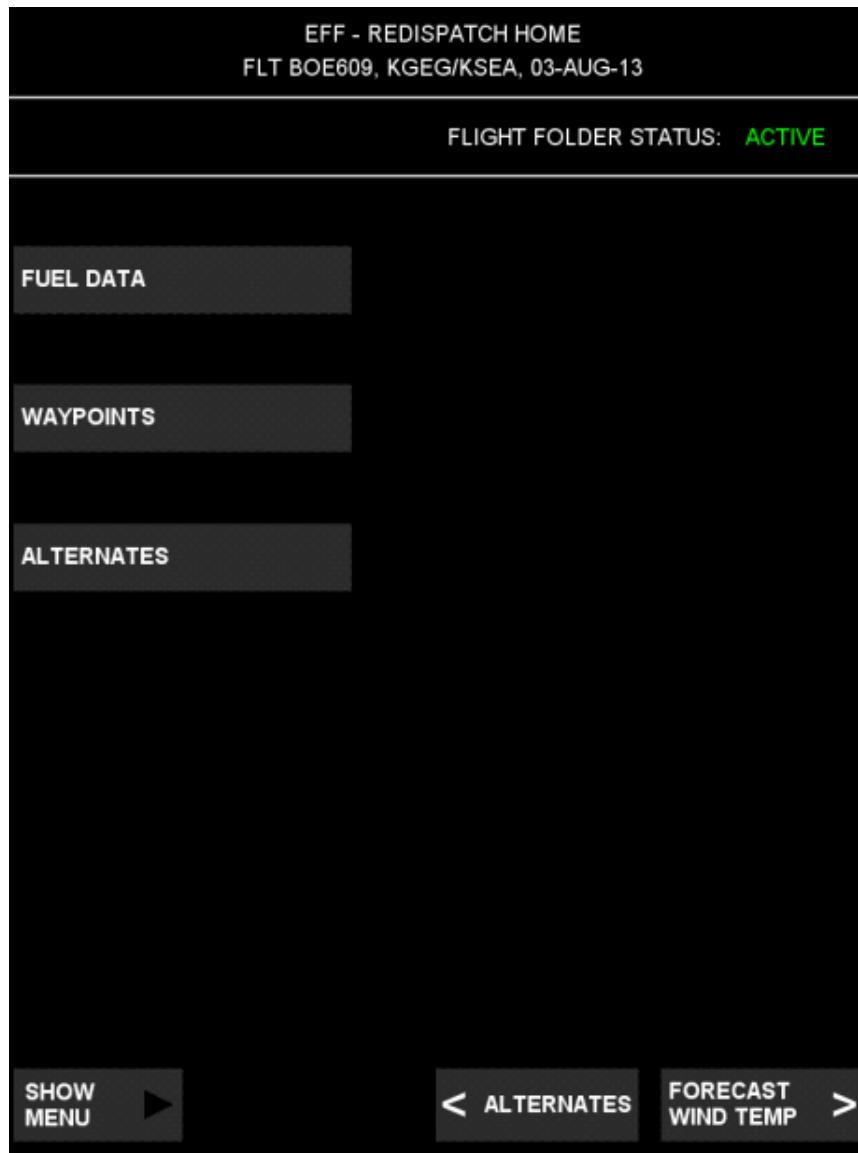
EFF – ALTERNATE WAYPOINTS page

2. After you review the information, select **SHOW MENU** and choose a selection from the menu.

Reviewing Redispatch

Use the features of the redispatch topic to view redispatch information. Remember that your organization defines the name of this button, and it might be labeled “contingency savings,” “reclearance,” or “reduced reserve”. To access the topic, select the redispatch topic button. This button is active if the loaded OFP contains redispatch data.

EFF displays the EFF – REDISPATCH HOME page. As with the redispatch topic button name, the name of this page is configurable by your administrator.



EFF – REDISPATC HOME page

The options associated with the **SHOW MENU** button on the EFF – REDISPATC page are specific to the flight plan.

Managing Redispatch Options

From the EFF – REDISPATC HOME page, you can access the following three subtopics to address appropriate redispatch options:

- FUEL DATA
- WAYPOINTS
- ALTERNATES

Fuel Data

Select the FUEL DATA button to open the EFF – REDISPATC FUEL page and enter any changes to the reduced reserve fuel information.

EFF - REDISPATCH FUEL FLT BOE609, KGEG/KSEA, 03-AUG-13			
FLIGHT FOLDER STATUS: ACTIVE			
	PLAN	TIME	ACTUAL
TOF	111629		111629
TRIPFUEL	95369		95369
EXTRA	i 0	Add reason	0
CONT CONT 3%	0		0
ALTFUEL (CYVR)	0	CYVR	0
ETOPFUEL			
RESFUEL			
TAXIFUEL	1100		1100
ARRFUEL			
RAMPFUEL	112729		112729

SHOW
MENU



WAYPOINTS >

EFF – REDISPATCH FUEL page

The content of this page contains the same fuel parameters and labels as on the main EFF – FUEL & WEIGHTS page. The application uses the same formulas and calculations to derive estimated fuel amounts as used on the EFF – FUEL & WEIGHTS page. For example, Takeoff Fuel equals Taxi Fuel plus Trip Fuel. Weight parameters do not appear on this page.

For more information about fuel data, see “Working with Fuel & Weights Information.”

Waypoints

Select the WAYPOINTS button to open the EFF – REDISPATCH WAYPOINTS page.

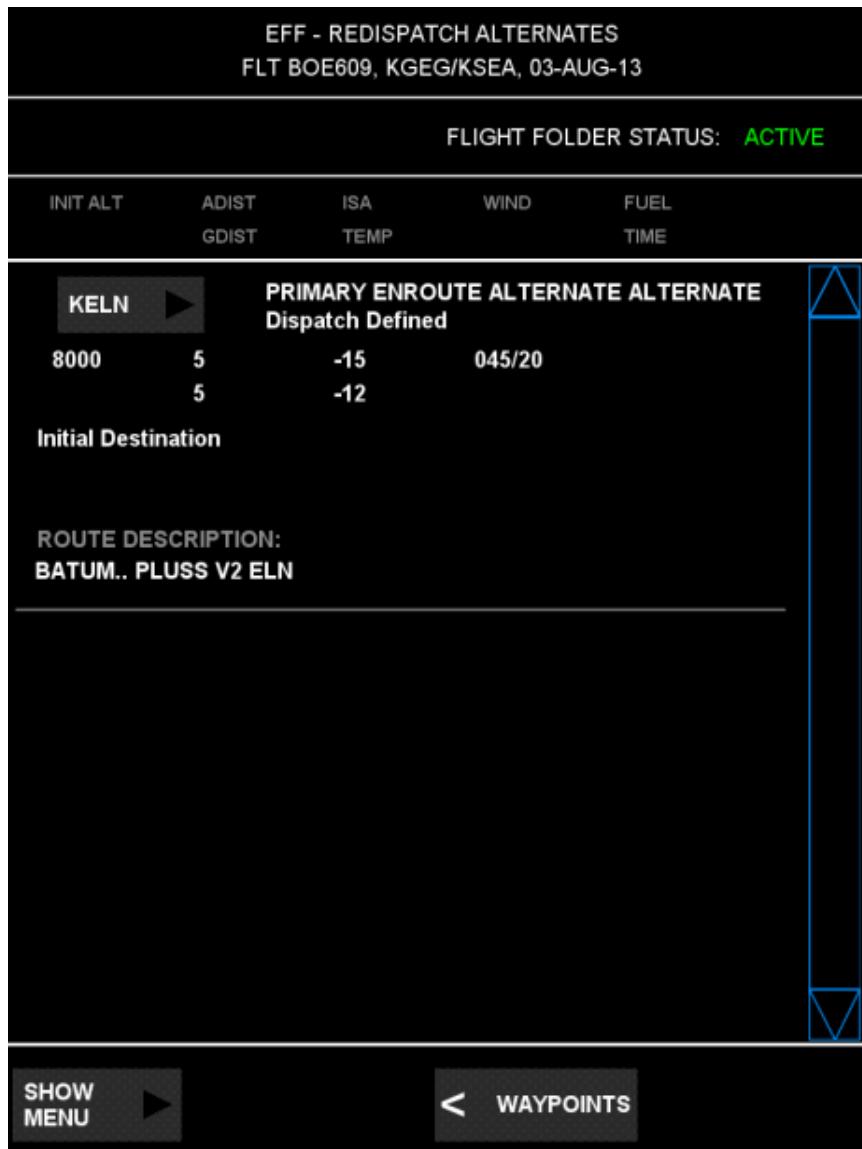
EFF - REDISPATCH WAYPOINTS					
FLT BOE609, KGEG/KSEA, 03-AUG-13					
FLIGHT FOLDER STATUS: ACTIVE					
PLANALT	AWT	ETA	RETA	ATA	DTIME
MSA	BURNOFF	EFOB	EFOBC	AFOB	FOBDIFF
BATUM ► N4139.0 / W07454.6					
300	--.-	1802z	---z	---z	
075	290	108290	107327	--.-	
PLUSS ► N4139.0 / W07454.6					
300	--.-	1802z	---z	---z	
075	490	107800	106837	--.-	
EDSEW ► N4139.0 / W07454.6					
300	--.-	1802z	---z	---z	
075	300	107500	106537	--.-	
DOFDO ► N4139.0 / W07454.6					
300	--.-	1802z	---z	---z	
075	250	107250	106287	--.-	
SHOW MENU ►		< FUEL DATA		ALTERNATES >	

EFF – REDISPATCH WAYPOINTS page

The content of this page contains the same waypoint elements and labels as the main EFF – WAYPOINTS page. You can access all functions of the EFF-WAYPOINTS page from this page, including the WAYPOINT DETAILS page.

Alternates

Select the ALTERNATES button to open the EFF – REDISPATCH ALTERNATES page and update defined alternate airport information.



EFF – REDISPATCH ALTERNATES page

The content of this page contains the same alternates elements and labels as the main EFF – ALTERNATES page, although the airports that appear depend on how your organization sets up its redispatch information. Use the scroll bar to view all of the alternate airports to the initial (en route) alternate and their associated information. This information is provided by the OFP.

EFF displays destination alternates in the following order:

- Primary alternate (if nominated by dispatch)
- All other destination alternates (sorted by increasing diversion fuel values)

The first two types of alternates display at the top of the list in the order listed here. The others are sorted by ascending order of their alternate fuel/estimated weight values.

Viewing Redispatch Items in the Flight Plan

When redispatch information is defined in the flight plan, additional information appears in the EFF – FLIGHT PLAN HEADER page and EFF – WAYPOINTS page.

Viewing Redispatch Data on the EFF – FLIGHT PLAN HEADER Page

The EFF – FLIGHT PLAN HEADER page displays two pieces of information for redispatch.

EFF - FLT PLAN HEADER
FLT BOE609, KGEG/KSEA, 03-AUG-13

FLIGHT FOLDER STATUS: PENDING

BOE609, CISLAB7			
ROUTE DESCRIPTION:			
KGEG..GANGS V2 MWH V448 YKM V4 CHINS6 KSEA			
FLIGHT PLAN TYPE: reclearance			
CALLSIGN:	BOEING001	ADIST:	219
FPIID:	OFP12	GDIST:	220
CAPTAIN:	HUNTER S	AVG TEMP:	-48
FM ROUTE:		AVG WIND:	270/8
COMPTIME:	11-NOV-09/0836	AVG ISA:	-3
RT NAME:	GEG-SEA	PERF FAC:	1.025
Redispatch INFO:			
DP:	BATUM		
MIN FUEL:	12500		
INIT DEST:	KELN		
FINAL DEST:	KSEA		
FUEL TO DEST:			
TIME TO DP:			

SHOW MENU

FLT TIME SUMMARY >

EFF – FLIGHT PLAN HEADER page

The FLIGHT PLAN TYPE appears as “reclearance,” and the Route Information Block includes the following redispatch information:

DP—Decision point, corresponding to the first waypoint on the on the EFF – REDISPATCH WAYPOINTS page

MIN FUEL—Minimum fuel required at the decision point

INIT DEST (or ERA)—The initial destination (or Enroute Alternate)

FINAL DEST—The airport code of the destination airport

FUEL TO DEST—Required fuel to reach the final destination

TIME TO DP—The cumulative flight time to the decision point

Viewing the WAYPOINTS Page

EFF labels the redispatch decision point waypoint on the EFF – WAYPOINTS page.

EFF - WAYPOINTS
FLT BOE609, KGEG/KSEA, 03-AUG-13

FLIGHT FOLDER STATUS: ACTIVE					
PLANALT	AWT	ETA	RETA	ATA	DTIME
MSA	BURNOFF	EFOB	EFOBC	AFOB	FOBDIFF
250	--.-	1757z	---z	---z	
075	1675	109965	109007	--.-	
----- REDISPATCH DECISION POINT -----					
SUBDY ➔ N4139.0 / W07454.6					
300	--.-	1800z	---z	---z	
075	1390	108580	107617	--.-	
----- REDISPATCH DECISION POINT -----					
BATUM ➔ N4139.0 / W07454.6					
300	--.-	1802z	---z	---z	
075	290	108290	107327	--.-	
----- REDISPATCH DECISION POINT -----					
MWH ➔ N4139.0 / W07454.6					
300	--.-	1803z	---z	---z	
075	310	107990	107017	--.-	
----- REDISPATCH DECISION POINT -----					
RUBEL ➔ N4139.0 / W07454.6					
SHOW MENU ➔			<	FUEL & WEIGHTS	>
ATC FLIGHT PLAN					

Viewing Airline-Defined Topics

To view airline-defined topics, select the airline-defined topic button from the EFF – SELECTED FLIGHT FOLDER page. Follow your organization's instructions for reviewing this information and performing any associated tasks.

Viewing Loadsheet Information

To view loadsheet information, select **LOADSHEET** from the EFF – SELECTED FLIGHT FOLDER page. The loadsheet is not editable.

EFF - LOADSHEET
 FLT BOE609, KGEK/KSEA, 03-AUG-13

FLIGHT FOLDER STATUS: **ACTIVE**

LOADSHEET

FINAL BOE605/XX GEGSEA CISLAB8 15JUN11

CREW 2/13 PAX 18/42/175 TTL 239

ZFW	337310	MAX	385810
TOF	115080		
TOW	452390	MAX	589740
TIF	100310		
LAW	352080	MAX	363760

BALANCE AND SEATING

DOW	279718	DOI	103.0		
LIZFW	114.1	MACZFW	27.7		
LITOW	114.3	MACTOW	27.1		
STAB TO	3.9	NOSE UP			
A18.B42.C72.D103.	PW 35215				
1/17151	2/5533	3/17101	4/9160	5/1699	T50647
UNDERLOAD 174					
LMC					
DEST	SPEC	+/-	WT / INDEX		

SI
 NOTOC REQUIRED: YES

CHKD CEDRIC LIC1234
 ENDBOE609

▶

▶

EFF – LOADSHEET page

Depending on your organization's settings, you might sign or accept the loadsheet separately from the flight plan.

Accepting the Loadsheet

To accept the loadsheet:

1. Select **SHOW MENU > ACCEPT** from any loadsheet page.
2. Select **YES** to confirm your request.

Signing the Loadsheet

To sign the loadsheet:

1. From the EFF – LOADSHEET page, select **SHOW MENU > SIGN**.

Depending on your organization's configuration, EFF displays either the EFF – SIGNATURE ACCOUNTS page or the EFF – SIGN LOADSHEET page. If EFF displays the EFF – SIGNATURE ACCOUNTS page, enter your name or personnel ID to advance to the EFF – SIGN LOADSHEET page.

2. On the EFF – SIGN LOADSHEET page, enter the appropriate information.
3. Select **CONFIRM**.

EFF sends the electronic signature data to ground for record keeping.

Requesting a New Loadsheet

To request a new loadsheet:

1. From the EFF – LOADSHEET page, select **SHOW MENU > REQUEST UPDATE**.

EFF prompts you to confirm the request.

2. Select **Yes**.

EFF sends the request to ground for processing.

Viewing NOTOC Information

From the EFF – SELECTED FLIGHT FOLDER page, select **NOTOC** to view notifications to captain. The information on this page is not editable or searchable.

EFF - NOTOC
FLT BOE605, KGE/KSEA, 15-JUN-11

FLIGHT FOLDER STATUS: **ACTIVE**

SPECIAL LOAD NOTIFICATION TO CAPTAIN : 00

CHECKED BY : NOT FINALIZED YET

I, [REDACTED], DECLARE
THERE IS NO EVIDENCE THAT ANY DAMAGED OR LEAKING
PACKAGES CONTAINING DANGEROUS GOODS HAVE BEEN LOADED
DURING BUILD UP IN THE WAREHOUSE. THE SHIPMENTS HAVE
BEEN LOADED AND SECURED IN ACCORDANCE WITH THE IATA AND
COMPANY INSTRUCTIONS. THIS NOTOC WAS PREPARED BY ME.

FROM FLIGHT	DATE	TIME	A/C REG
GEG 605	15JUN11	0330Z	CISLAB8

DANGEROUS GOODS

PROPER SHIPPING NAME
 TO AWB CL/DV UN/ID SUB PCS QTY/TI RRR PKG IMP CAO POS
 COMP NBR RSK CAT GRP CODE ULD CODE

003.CARTRIDGES FOR WEAPONS, BLANK
 ERG 3L PI 130 MAX QTY 25 KG
 GEG 23455349 1.4S ID/ *** 1 3KG *** RMD A53
 0014

002.CARTRIDGES FOR WEAPONS, INERT PROJECTILE
 ERG 3L PI 130 MAX QTY 25 KG
 SEA 03456456 1.4S ID/ *** 1 4KG *** RFL A51
 0012

004.EXPLOSIVES
 SEA 04567657 4.1 ID/ *** 1 2.0TI II RRY A51
 9878 5KG

SHOW MENU ►

Viewing NOTOC information

Accepting a NOTOC

To accept a NOTOC:

1. Select **SHOW MENU > ACCEPT** from any NOTOC page.
2. Select **YES** to confirm your request.

Signing a NOTOC

To sign a NOTOC:

1. From any NOTOC page, select **SHOW MENU > SIGN**.

Depending on your organization's configuration, EFF displays either the EFF – SIGNATURE ACCOUNTS page or the EFF – SIGN NOTOC page. If EFF displays the EFF – SIGNATURE ACCOUNTS page, enter your name or personnel ID to advance to the EFF – SIGN NOTOC page.

2. On the EFF – SIGN NOTOC page, enter the appropriate information.

3. Select **CONFIRM**.

EFF sends the electronic signature data to ground for record keeping.

Requesting Updated NOTOC Information

To request an update to the NOTOC:

1. From the EFF – NOTOC page, select **SHOW MENU > REQUEST UPDATE**.

EFF prompts you to confirm the request.

2. Select **Yes**.

EFF sends the request to ground for processing

Activating or Signing the Flight Plan

Depending on your organization's needs, you might activate or sign the flight plan.

Activating the Flight Plan

To activate the flight plan, select **SHOW MENU > ACTIVATE** from any flight plan page.

Signing the Flight Plan

To sign the flight plan:

1. From any flight plan page, select **SHOW MENU > SIGN**.

Depending on your organization's configuration, EFF displays either the EFF – SIGNATURE ACCOUNTS page or the EFF – SIGN FLIGHT PLAN page. If EFF displays the EFF – SIGNATURE ACCOUNTS page, enter your name or personnel ID to advance to the EFF – SIGN FLIGHT PLAN page.

2. On the EFF – SIGN FLIGHT PLAN page, enter the appropriate information.
3. Select **CONFIRM**.

EFF sends the electronic signature data to ground for record keeping.

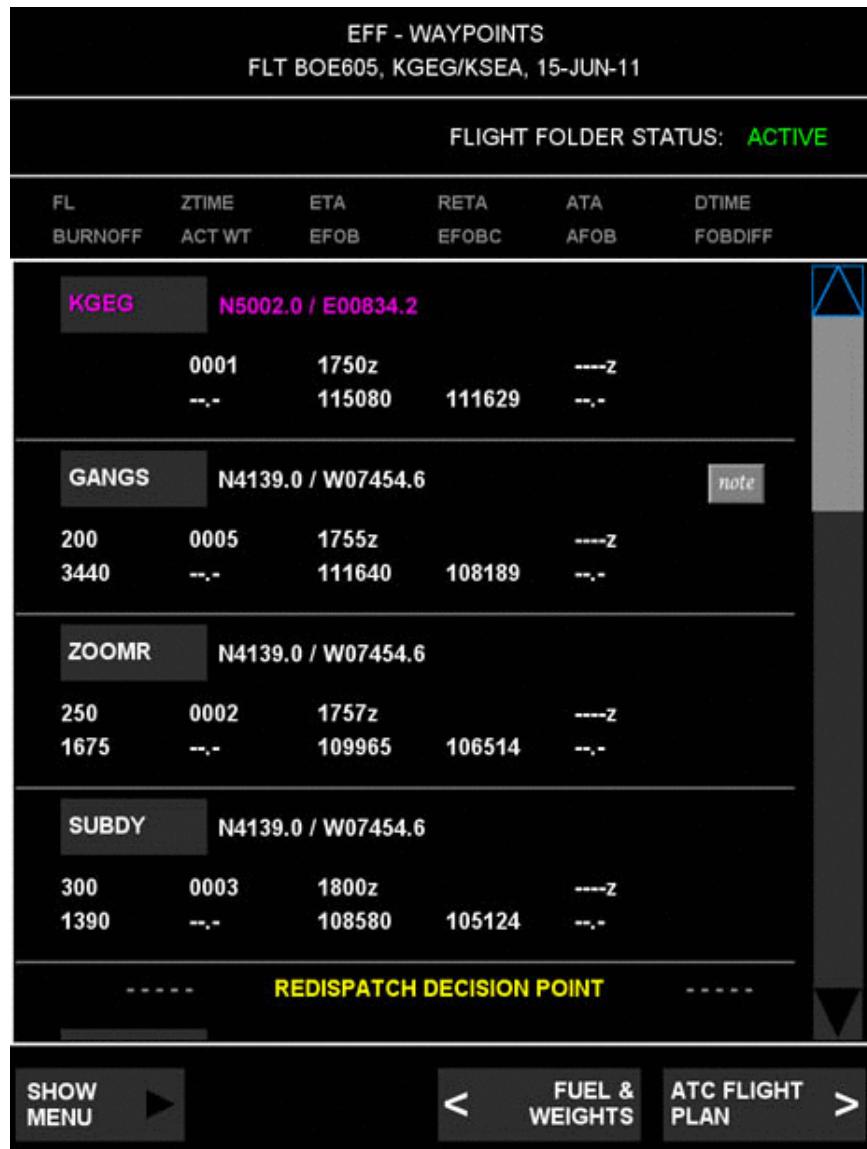
Working with Waypoints

As you fly, use the EFF – WAYPOINTS page to monitor and log the progress of your flight.

If your EFB is configured to acquire avionics data, EFF automatically logs and displays applicable data as you cross waypoints. Most Class 3 and Class 2 environments are configured to acquire this data. A Class 1 EFB might not acquire avionics data.

If your EFB does acquire avionics data, EFF records all waypoints as they are crossed, regardless of whether they are listed in the flight plan; however, if the waypoints are not in the flight plan, EFF will not display them. Instead, the application records such data "in the background."

EFF displays the active waypoint (the waypoint for which the FMC is currently broadcasting) in magenta.



Active waypoint in magenta

For EFF to collect avionics data for a waypoint in the active flight plan, the waypoint name in EFF must exactly match the waypoint name in the FMC. If the waypoint names do not match, EFF does not apply any special color code to the waypoint name.

You can edit or enter inputs for any waypoint elements or attributes that EFF displays. Manual entries have the highest priority in EFF and override data from the flight plan or FMC-acquired data.

EFF assigns the following priorities to the three input types:

- Data manually entered by the flight crew—Overrides any other inputs
- **GET FM DATA** action—Overrides inputs automatically imported from avionics
- Avionics automatic import—Default input if the EFB is connected to avionics

EFF distinguishes actual values at a waypoint from the planned data in green, enabling you to easily determine how the flight is progressing compared with the plan.

NOTE: To enable waypoint data inputs, the flight plan must be signed or activated.

To edit or enter waypoint data:

1. Select a waypoint to display the EFF – WAYPOINT DETAILS page.
2. Make the appropriate entries. When you input a new value, EFF calculates the difference between the estimated value and the actual value and displays the difference between the two values in the DIFF column (if applicable).

If you enter any comments, EFF displays a NOTE indicator on the EFF – WAYPOINTS page.

NOTE: If you need to clear any erroneously entered data, select **SHOW MENU > CLEAR DATA**. EFF clears all entries, and reverts input fields to the state they were in when the information was most recently saved. Note, however, that if your administrator has configured EFF to display revised estimated times and fuel at waypoints and if you need only to clear any erroneously entered data in either the *RETA* field or the *EFOBC* field, select **SHOW MENU > Restore Values** to revert to the previously saved values.

3. Select **ACCEPT**.

ACCEPT commits the data and syncs it with the other EFBs in the cockpit if the systems are connected.

4. Select **SHOW MENU > WAYPOINTS MAIN** to return to the EFF – WAYPOINTS page.

In some cases, you might want to manually capture data from avionics about a specific waypoint.

To manually capture waypoint data from avionics:

1. Select a waypoint to display the EFF – WAYPOINT DETAILS page.
2. Select **SHOW MENU > GET FM DATA**.
EFF logs the data acquired at that moment.
3. Select **ACCEPT**.
4. Select **SHOW MENU > WAYPOINTS MAIN** to return to the EFF – WAYPOINTS page.

Waypoints Data Calculations

This section describes how EFF uses takeoff time to calculate revised estimated times over waypoints.

If your administrator has configured EFF to display revised estimated times and fuel at waypoints, the following information is important to your understanding of how EFF calculates those values based on data that you enter. This document covers the time and fuel calculations separately.

Revised Estimated Time Calculations

When your actual takeoff time is known (you have entered a value or EFF has used the Weight-On-Wheels discrete to determine the wheels-up time), EFF calculates the revised times for each waypoint over the entire route.

In the following figure, you see that the actual takeoff time was **1752z**.

EFF - FLT TIME SUMMARY					
FLT BOE605, KGEG/KSEA, 21-SEP-11					
FLIGHT FOLDER STATUS: PENDING					
	EST	ACTUAL			
OUT	1745z	1743z	[<] [14-OCT-2011] [>]		
TAKEOFF	1750z	1752z	[<] [14-OCT-2011] [>]		
LANDING	1828z		[<] [14-OCT-2011] [>]		
IN	1833z		[<] [14-OCT-2011] [>]		
FLT TIME	0038	--:--			
BLK TIME	0048	--:--			

Actual Takeoff Time

When this actual takeoff time is known, EFF calculates the revised estimated time of arrival over the waypoints (the RETA column in the following figure) based on the time between waypoints that was provided in the flight plan (ZTIME column). For instance, actual takeoff time is 1752z, and time to the first waypoint is 0001 minutes (ZTIME); thus, the RETA for that first waypoint is now 1753z (1752z + 0001).

EFF - WAYPOINTS					
FLT BOE605, KGEG/KSEA, 21-SEP-11					
FLIGHT FOLDER STATUS: PENDING					
FL BURNOFF	ZTIME ACT WT	ETA EFOB	RETA EFOBC	ATA AFOB	DTIME FOBDIFF
KGEGL	N5002.0 / E00834.2				
	0001	1750z	1753z	--z	
	--.-	115080	111629	--.-	
GANGS	N4139.0 / W07454.6				
	200	0005	1755z	1758z	--z
	3440	--.-	111640	108189	--.-

RETA values
based on
takeoff time

RETA for the First Waypoint

The RETA for each subsequent waypoint is based on the RETA of the preceding waypoint. However, your organization can configure the application so that when the aircraft passes over each waypoint and the ATA is established (either from aircraft systems or manually entered data), the ATA value is used to

recalculate the RETA of all subsequent waypoints. For example, assume that the aircraft passed waypoint KGEG at **1754z** rather than at the RETA of 1753z. Note that the RETA for GANGS has been revised upward by one minute to **1759z**, as shown in the following figure:

EFF - WAYPOINTS FLT BOE607, KGEG/KSEA, 29-JUN-12						
FLIGHT FOLDER STATUS: ACTIVE						
FL BURNOFF	ZTIME ACT WT	ETA EFOB	RETA EFOBC	ATA AFOB	DTIME FOBDIFF	
KGEG		N5002.0 / E00834.2				
0001	1750z	1753z	1754z	+1		
--.	115080	111629	--.			
GANGS		N4139.0 / W07454.6				
200	0005	1755z	1759z	----		
3440	--.	111640	108189	--.		

RETA for Subsequent Waypoints

Revised Estimated Fuel Onboard

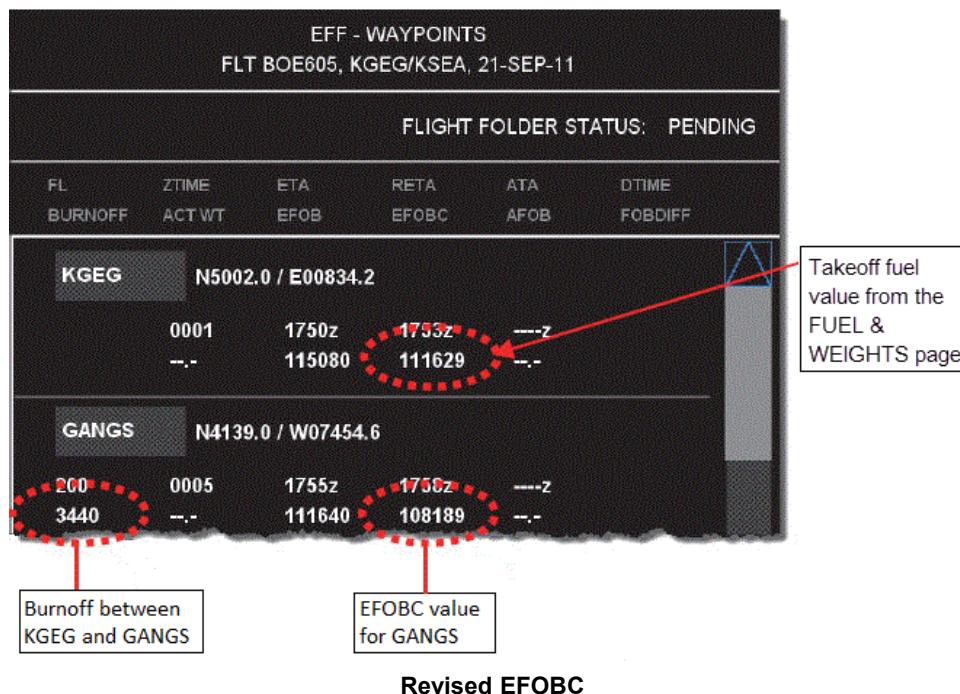
EFF uses the actual takeoff fuel to determine the revised estimated fuel onboard (EFOBC) values for each waypoint on the route.

In the following figure, you see that the actual takeoff fuel is **111629**.

EFF - FUEL & WEIGHTS FLT BOE605, KGEG/KSEA, 21-SEP-11				
FLIGHT FOLDER STATUS: PENDING				
	PLAN	TIME	LIMIT	ACTUAL
ZFW	337310		385810	337310
TO FUEL	111629	0145		111629
TOW	448939		589740	448939
TRIPFUEL	100310	0046		100310
LW	348629		OP LIMIT 363760	348629
ARR FUEL	14513			14513
EXTRA	i 7055	0037		7055
CNTGCY				

Actual Takeoff Fuel

EFF calculates the revised estimated fuel onboard (EFOBC column in the following figure) based on the actual takeoff fuel and the fuel burnoff between each waypoint (BURNOFF column). The burnoff shown at a waypoint is the amount of fuel burn from the previous waypoint to the current waypoint. For example, the actual takeoff fuel is **111629**, and that fuel is assigned to EFOBC for the first waypoint (KGEG). For the next waypoint (GANGS), burnoff is **3440**, and the EFOBC value becomes **108189** ($111629 - 3440$). The pattern is repeated for all remaining waypoints in the flight plan.



EFF can also calculate and display the difference between the actual fuel on board and the estimated fuel on board. To perform this calculation, the following conditions must be present:

- The actual fuel on board must have a value.
- The estimated fuel on board (or the corrected estimated fuel on board) must have a value.

If the difference between the actual fuel on board and the estimated fuel on board is a negative value, EFF displays this value in amber.

Updating Flight Folders

Depending on your organization's policies, you might receive updates to a flight folder, including updates to a flight plan that you have already signed or activated. Refer to your organization's procedures for activating or rejecting updated flight plan data. You must activate the updated flight plan data to record flight progress and other data from the flight crew or avionics against that flight plan. If you reject a flight plan, that flight plan no longer appears in the list of available flight plans on the EFF – SELECTED FLIGHT FOLDER page.

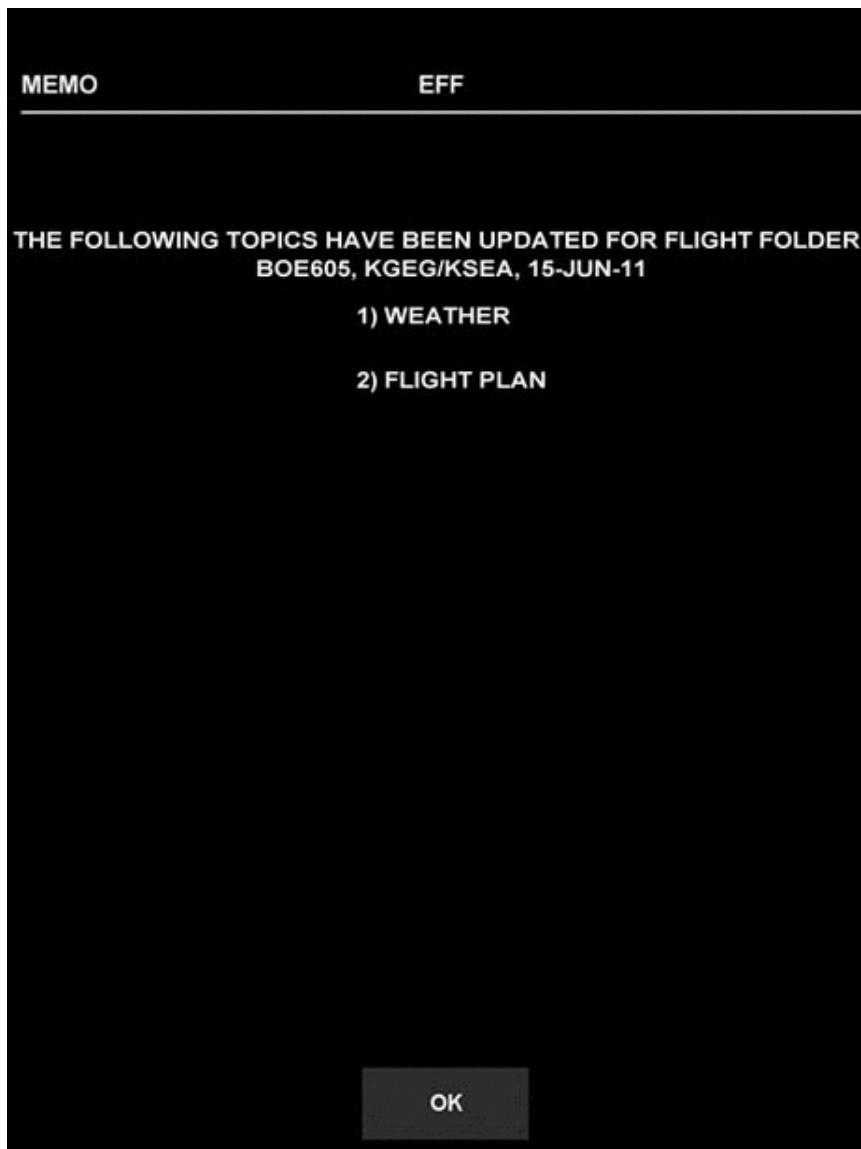
NOTE: You can also *request* updates to flight plans and other flight folder information. For more information, see the "Requesting Updates" section.

When EFF receives updates to the flight folder, it displays a MEMO notification.

To view the MEMO information:

1. From the EFB Main Menu, select the EFF application button.

EFF displays a notification.



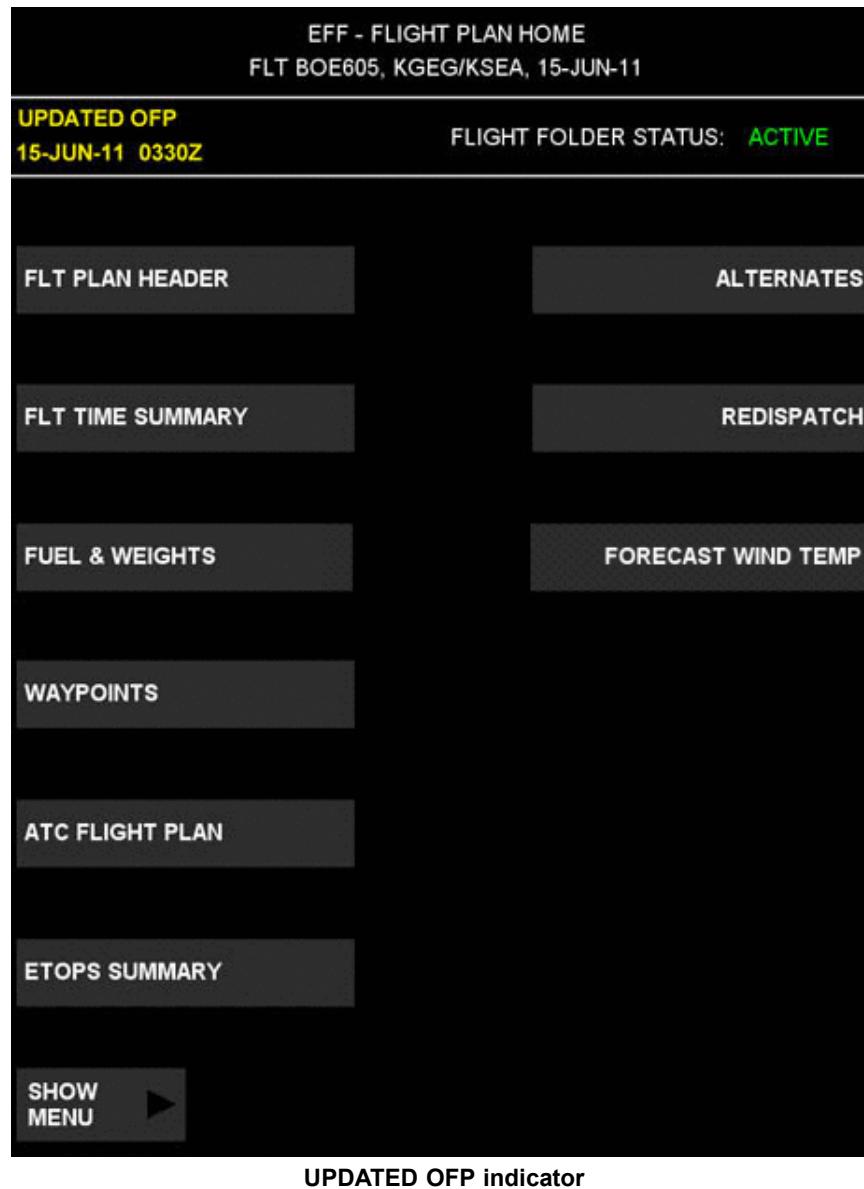
Viewing a MEMO notification

2. Select **OK** to close the MEMO.

To activate an updated flight plan:

1. From the EFF- SELECTED FLIGHT FOLDER page, select the **FLIGHT PLAN** button.
2. Select the updated flight plan from the cascading menu. (For more information about this menu, see the "Reviewing the Flight Plan" section.)

EFF displays the EFF – FLT PLAN HOME page. A yellow UPDATED indicator appears at the top left of the page.



UPDATED OFP indicator

3. Select **SHOW MENU > ACTIVATE**.

The UPDATED OFP label no longer appears.

EFF assigns the activated flight plan the status of SIGNED and ACTIVE and records any flight progress updates by the flight crew or from avionics data in this flight plan.

Depending on your organization's configuration settings, the superseded flight plan might remain visible in your flight folder. If EFF is configured to continue to display the flight plan, it changes the flight plan button label to OLD. In addition, the OLD designator appears on all pages in the flight plan's headers.

Regardless of whether EFF displays the flight plan, EFF continues to associate it with the current flight folder.

To reject a flight plan:

1. From the EFF – FLT PLAN HOME page, select **REJECT**.
2. Select **YES** to confirm the rejection.

NOTE: You cannot undo a reject action after you select **YES**.

EFF returns you to the EFF – SELECTED FLIGHT FOLDER page. The application does not display the updated flight plan and does not associate it with the current flight folder.

Performing Secondary Tasks

You can perform the following secondary tasks associated with flight folders:

- Viewing historical flight folders
- Deleting a flight folder
- Requesting a flight folder
- Recovering the last flight folder
- Requesting updates to flight folder information

Viewing Historical Flight Folders

Your organization might configure EFF to store closed flight folders on board the EFB for a specified period. These closed flight folders are “historical” folders. Depending on your organization’s policies, you might have access to these folders. The content in a historical flight folder is read-only; you cannot make changes to it.

If your organization retains historical flight folders, the number of folders that are retained are based on number of flights or a particular period.

To view a historical flight folder:

1. From the EFF – HOME page, select **SHOW MENU > HISTORICAL FOLDERS**.

EFF displays the EFF – HISTORICAL FLIGHT FOLDERS page. All folders have a status of CLOSED.



Viewing a list of historical folders

EFF displays the folders in chronological order with the most recent flight at the top of the list.

2. Select the appropriate flight folder from the list.
3. To return to the EFF – HOME page, select **SHOW MENU > EFF HOME**.

Deleting a Flight Folder

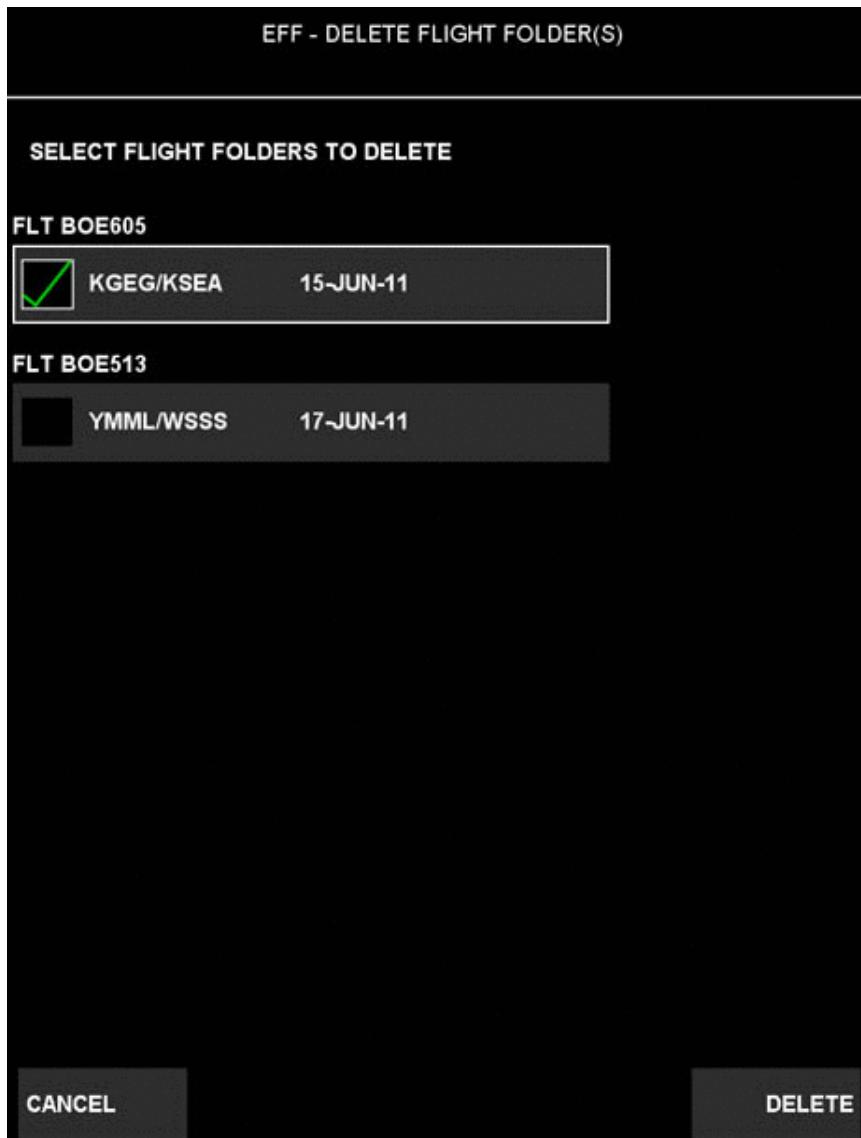
Depending on the circumstances, you are able to delete a flight folder you do not need. For example, you might need to delete a flight folder if an incorrect flight folder was uploaded to the EFB or if the aircraft rotation changed after the flight folder for the original route was already uploaded. Deleting a flight folder deletes all associated data.

To delete a flight folder:

1. From the EFF – HOME page, select **SHOW MENU > DELETE FOLDER**.

EFF displays the EFF – DELETE FLIGHT FOLDER page, which lists all available flight folders that have a status of PENDING. Flight folders with a status of SIGNED, ACTIVE, or CLOSED cannot be deleted.

NOTE: If the status of a flight folder changed during the deletion process (for example, one pilot was signing the flight plan while the other was attempting to delete the same flight folder on the other EFB), EFF displays a notification. Select **OK**, and the system returns you to the EFF – HOME page.



Selecting a flight folder to delete

2. Select each folder that you want to delete.
3. Select **DELETE**.

EFF displays a confirmation page that identifies the flight folders that are selected for deletion.

4. Select **CONFIRM**.
-

NOTE: Selecting **CONFIRM** is not reversible.

EFF deletes the flight folder and returns you to the EFF – HOME page. The flight folders you deleted no longer appear in the list of available flight folders.

Requesting a Flight Folder

If the flight folder for your flight has not been uploaded to your EFB, use the EFF application to request the flight folder from ground.

To request a flight folder:

- From the EFF – HOME page, select **SHOW MENU > INITIATE REQUEST**.

EFF displays the EFF – REQUEST FLIGHT FOLDER page.



The screenshot shows the 'EFF - REQUEST FLIGHT FOLDER' screen. At the top, it says 'ENTER THE FLIGHT NUMBER, CITY PAIR AND DATE'. Below this, there are fields for 'FLT NO.' (with a red asterisk), 'FLIGHT DATE (Z)' (showing '30-SEP-2013' with navigation arrows), 'ORIGIN' (with a red asterisk), 'DEST', and 'REASON'. At the bottom left is a 'CANCEL' button, and at the bottom right is a 'SEND' button. Below the screen is a numeric keypad grid:

SYMB	SHIFT	A	B	C	D	E	
'	,	?	F	G	H	I	J
1	2	3	K	L	M	N	O
4	5	6	P	Q	R	S	T
7	8	9	U	V	W	X	Y
.	0	-	Z	SP	CLR FLD	/	BKSP

Requesting a flight folder

- Make the appropriate modifications. A magenta asterisk denotes required fields.

- In the **FLT NO** field, enter the flight number.
- In the **ORIGIN** field, enter the ICAO or IATA identifier of the origin city.
- In the **DEST** field, enter the ICAO or IATA identifier of the destination city.

- In the **FLIGHT DATE (Z)** field, select the left or right arrow to choose the date of the flight. The flight date must be the current date or later. If you attempt to select a date in the past, EFF displays the following notification: FLIGHT DATE MUST BE GREATER THAN OR EQUAL TO TODAY'S DATE. Select **OK** to close the notification.
 - In the **Reason** field, enter the reason for the request.
3. Select **SEND**.

EFF sends the request to ground personnel.

NOTE: If EFF encounters errors while sending the request to ground, the EFB displays a MEMO notification. Select **OK** to clear the notification. Follow your organization's policies to request a flight folder.

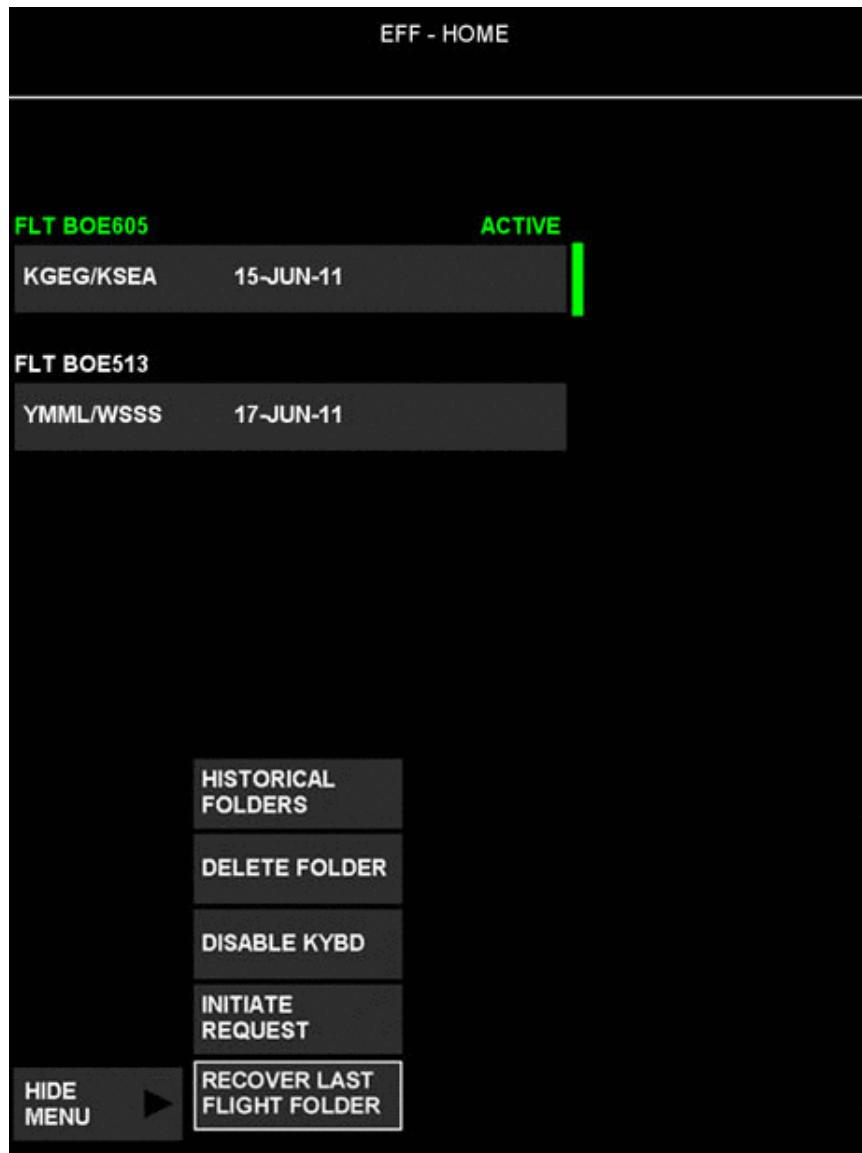
Recovering the Last Flight Folder

Depending on your organization policies, you might be able to recover a flight folder that you inadvertently closed when you selected the CLOSE FLIGHT option on the EFB.

For EFF to recover a flight folder, the aircraft must be on the ground.

To recover the last flight folder:

1. From the EFF – HOME page, select **SHOW MENU > RECOVER LAST FLIGHT FOLDER**.



Recovering a flight folder

2. Select **YES** to confirm your request.

EFF restores the last flight folder. The recovered flight folder becomes the ACTIVE flight folder, and it appears in the top position in the list on the EFF – HOME page. The flight folder that was ACTIVE before the recovery reverts to SIGNED status. Any user inputs to that flight folder are retained.

If necessary, repeat the process to recover additional flight folders. You can recover all of the flight folders that are listed on the EFF – HISTORICAL FLIGHT FOLDER page.

Requesting Updates to Flight Folder Information

You can request an update to the entire flight plan from any page within the flight plan. You can also request updates to specific information within the flight folder, such as weather and NOTAM updates, loadsheet updates, and updates to Notifications to Captain.

To request an update to the entire flight plan:

- From any page within the flight plan or from the EFF – Flight Plan Home page itself, select **SHOW MENU > REQUEST UPDATE**.

Regardless of the page that you select, the application sends to ground a request for an update to the entire flight plan.

To request selective updates to other information within the flight folder:

1. Access one of the following pages associated with the information that you want to update:

- EFF – WEATHER
- EFF – NOTAM
- EFF – LOADSHEET
- EFF – NOTOC
- EFF – <Airline-Defined Topic>

2. Select **SHOW MENU > REQUEST UPDATE**.

Troubleshooting

EFF might display the following fault notifications:

- THE SELECTED CONTENT CANNOT BE LOADED for FF <CommercialFlightNumber><Departure Airport Code>/<Arrival Airport Code> <flightOriginDate> and File Name <file name>—The EFB displays this fault on the SYSTEM screen and the Maintenance FAULT LOG screen. EFF displays the following notification to alert you to this fault: THE SELECTED CONTENT CANNOT BE LOADED. Select **OK** to close the notification.
- UNABLE TO OBTAIN TAIL ID—This fault occurs when the EFF cannot obtain the Tail ID from the FMC. EFF also displays a MEMO notification about this issue.

EFF might display the following MEMO notifications:

- THE FOLLOWING CONTENT HAS NOT BEEN SIGNED, ACCEPTED OR ACCEPTED FOR THE CURRENT FLIGHT—This notification lists the name of the items in question (operational flight plan, loadsheet, or NOTOC). Access the item and perform the appropriate task.
- THE FOLLOWING TOPIC(S) HAVE BEEN UPDATED FOR FLIGHT FOLDER <FlightIdentifier or CommercialFlightNumber> <Departure Airport Code>/<Arrival Airport Code> <flightOriginDate>—This notification displays the locations of the updated topics.
- UNABLE TO RETRIEVE TAIL ID—This notification appears if EFF is unable to obtain the Tail ID from the FMC. In addition to displaying a MEMO, EFF logs this issue as a fault.
- THE REQUEST COULD NOT BE PROCESSED AT THIS TIME. PLEASE USE ALTERNATE MEANS OF COMMUNICATION—This notification indicates a communications issue. In addition to displaying a MEMO, EFF logs this issue as a fault.



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VIDEO SURVEILLANCE SYSTEM

The Video Surveillance System application provides you with immediate video surveillance of the flight deck entry area and expanded video surveillance of other parts of the aircraft if other cameras are installed.

Using the Video Surveillance System Application

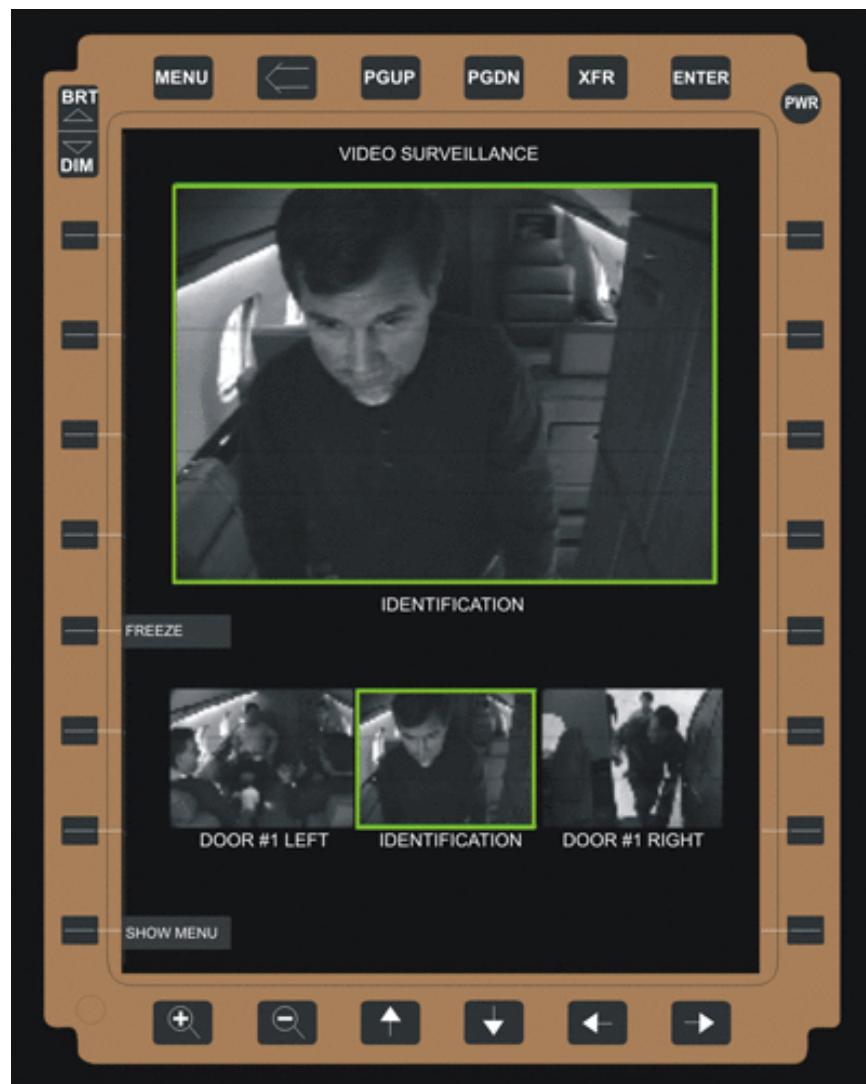
The Video Surveillance System application exhibits the following standard EFB behavior:

- To launch the application, select the application button on the MAIN MENU screen. Your organization defines the text of the button label.
- To exit the application, select the **MENU** bezel button to return to the MAIN MENU screen.
- To view system messages (indicated by MEMO or MSG notifications), select the application button on the MAIN MENU screen. The application displays the appropriate message.
Follow the on-screen instructions to acknowledge or resolve each MEMO notification.
- To view application faults, open the SYSTEM FAULT LOG screen.

For more information about standard EFB behavior, see the “Using the EFB” chapter.

Selecting an Image

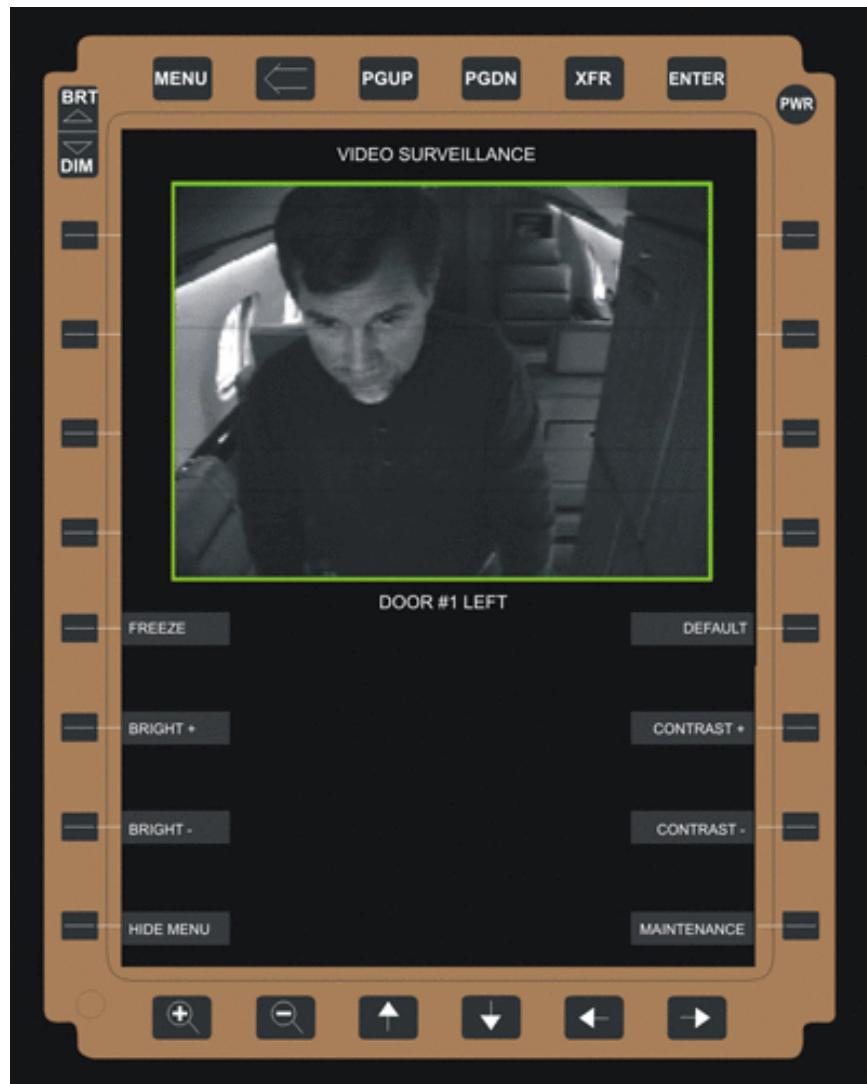
When you start the Video Surveillance System application, thumbnail images from different areas of the aircraft display on the Video Surveillance screen. The largest image in the application is called the “primary image.” A default thumbnail displays as the primary image until a different thumbnail is selected. To select a thumbnail for a primary image, touch it on the screen.



Video Surveillance screen

Manipulating the Display

When you select **SHOW MENU** on the Video Surveillance screen, the options listed below are available for changing the display. Buttons for these options display as shown in the screen that follows.



Video Surveillance screen and its menu

- **FREEZE/UNFREEZE**—By default, a live camera image displays in the Video Surveillance System application. If you want to freeze an image, select **FREEZE**. Frozen images are surrounded by a blue border. To view a live image, select **UNFREEZE**.
- **BRIGHT -/BRIGHT +**—To change the brightness of the image, select **BRIGHT +** or **BRIGHT -**.
- **CONTRAST -/CONTRAST +**—To change the contrast of the image, select **CONTRAST +** or **CONTRAST -**.

NOTE: Select **HIDE MENU** after making display changes to remove the menu from the display.

Troubleshooting

The following message might appear while you are using the Video Surveillance System application:

- **NO VIDEO SIGNAL**—This message is accompanied by an amber outline around a selected thumbnail or primary video image. It indicates that a failure occurred and the selected video image is not available for display.



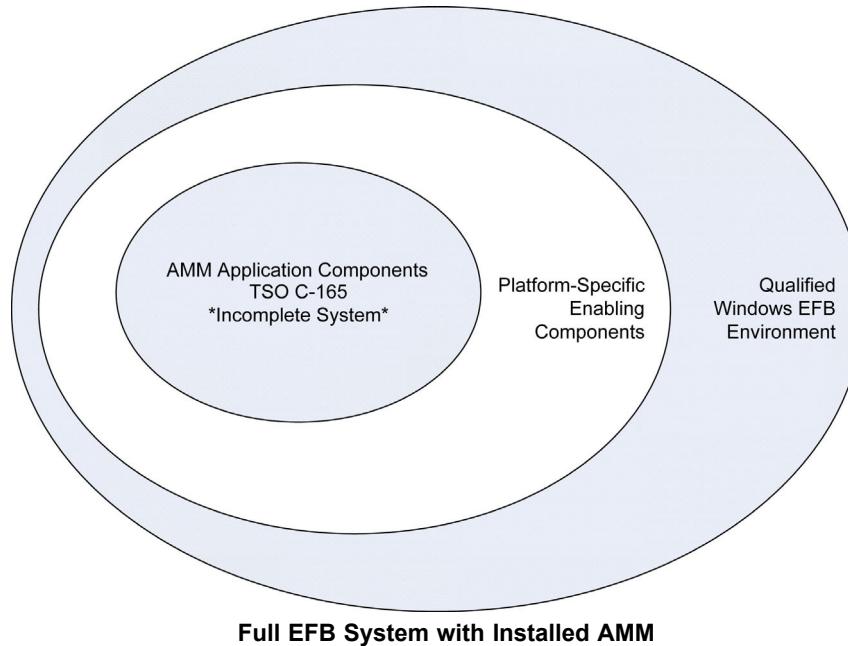
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APPENDIX A

TSOA-Required Information

This appendix contains information about the Jeppesen AMM technology. This technology is authorized under TSO C-165 as an "incomplete system." As such, the functionality that the AMM technology provides is fully dependent on the integration of the technology into a target Windows EFB environment. Additionally, the integration of this technology depends on the presence of an enabling layer of software components.

The following figure illustrates the three mutually dependent "layers" of software components in a Windows EFB environment. When installed per these instructions, the Jeppesen AMM incomplete system will continue to meet the requirements of TSO C-165.





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APPENDIX B

Class 2 EFB Operational Considerations

A variety of manufacturers provide Class 2 EFB hardware devices. This appendix provides information about significant operational considerations that are not discussed in the *Using the EFB* chapter. Regardless of the information provided in the following table, always consult the documentation for the Class 2 device that is installed in your aircraft.

Operational Considerations

Consideration	Description
Screen navigation	On some Class 2 EFB devices, the bezel does not include a Back button. To navigate back one screen at a time, you must access the soft keys and select the Back key.
Resetting the date and time	<p>Some situations require you to check the EFB clock and, if necessary, manually reset the clock. For example, you might need to reset the clock for the following situations:</p> <ul style="list-style-type: none"> • The EFB battery is completely discharged. • An EFB error occurs that requires you to restore the operating system. • The EFB clock must be synchronized with the flight deck clock. <p>To reset the clock:</p> <ol style="list-style-type: none"> 1. Access the IDENT screen. 2. Select SET CLOCK. <p>The DATE and TIME boxes are now input-capable.</p> <ol style="list-style-type: none"> 3. Use the virtual keyboard to enter the correct information.
Power button	On some EFBs, the power button might control only the screen display, only the CPU, or both. Refer to the documentation for your specific device for more information about powering on and powering off the device.



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GLOSSARY

A

active database

The database that is currently in use.

ADEL

Application Data Enhanced Load.

administrators

Personnel who configure the EFB per carrier preferences. Such personnel might also modify data and configuration files.

Air Transport Association of America (ATA)

An organization that establishes standards in the airline industry. It promotes the air transport industry, including the safety, cost effectiveness, and technological advancement of the industry's operations. The ATA advocates common industry positions before state and local governments, conducts designated industry-wide programs, and ensures governmental and public understanding of all aspects of air transport. The ATA's home page is www.airlines.org.

Aircraft Flight Manual (AFM)

Approved information that pilots must carry in their aircrafts. The AFM includes information about aircraft speeds and engine operating limits.

airport data

Airport information, such as airport elevation, runway data, and obstacle data.

Airport Moving Map (AMM)

An EFB application that displays taxi maps. These maps graphically portray runway, taxiway, and other airport features (such as significant structures, towers, airport beacons, concourses, gates, and de-ice pads) to support taxi or taxi-related operations.

alternate airport

A destination airport other than the one that was planned for the flight.

ARINC-665

A standard for loadable software parts to ensure compatibility and interoperability. Among other elements, it defines standards for numbering parts and labeling and formatting loadable software parts.

B

bezel buttons

Buttons that line the perimeter of the EFB display screen and grant access to specific functions on the EFB. Select a bezel button to launch its corresponding function.

bookmark

An EFB Document Browser function that flags content for easy retrieval.

C

CAM

Using the Content Application Module (CAM) for EFB applications, your organization can manage and build configuration files for the airborne applications.

CAT

Using the Configuration Administration Tool (CAT) for the EFB applications, your organization can package content for upload to the EFB.

chart

A pictorial presentation of data and maps. The Terminal Charts application can display several chart types, including chart change notices and airport, airspace, departure, arrival, and approach charts.

chart clip

The set of charts associated with a specific airport (ICAO identifier). Each chart clip contains a subset of the airport's airport charts, departure charts, arrival charts, approach charts, and chart change notices, which is the Jeppesen product for Notices to Airmen.

chart effectiveness

The date range during which a revision of a chart is valid for service.

chart type

Classification of a terminal chart based on the information it provides. The terminal chart can be one of the following terminal chart types: a) Ground; b) Standard Instrument Departure (SID); c) Standard Terminal Arrival (STAR); d) Approach; e) Airport Information, including chart change notices, which is the Jeppesen product for Notices to Airmen.

Class 1

One of three EFB classes. According to AC 120-76A, a Class 1 EFB is a commercial off-the-shelf device (COTS) that is portable and not mounted in the aircraft. It is not required to undergo an administrative process for use in the aircraft.

Class 2

One of three EFB classes. According to AC 120-76A, a Class 2 EFB is a commercial off-the-shelf (COTS)-based computer system used for aircraft operations. Considered a portable electronic device (PED) that is connected to an aircraft mounting device during normal operations, it is required to undergo an administrative process for use in the aircraft.

Class 3

One of three EFB classes. According to AC 120-76A, a Class 3 EFB system is installed equipment on the aircraft that requires approval.

Common Administration Tool (CAT)

A web-based ground application used by maintenance and ground personnel to customize EFB applications for individual carriers.

configuration

The underlying properties that define a specific installation of the EFB software.

D

Data Distribution and Management (DDM)

A set of applications that distribute software packages to specific recipients. For example, DDM distributes software packages for the Jeppesen Update Manager (JUM) or a portable dataloader. The DDM application set includes the DDM Administration Tool, the DDM Client application, and interface modules that integrate with specific platforms to provide additional functionality.

database effectivity

The date range during which a database is valid for service. The effective dates start at the database release date and extend until the date of the next database release.

database

The entire subset of coverages to which a carrier subscribes.

Day mode

A display option in which document text displays in black on a white background. This mode is useful when the cockpit is well-lit.

Delta dataset

Updates made to a dataset that was previously released. Delta datasets are supported by the ADEL features within DDM.

destination airport

The airport at which the flight will terminate.

E

effectivity dates

Dates for which information and configurations are applicable.

EFB Document Browser (EDB)

An EFB application that displays and manages XML, HTML, and PDF documents on the EFB.

EFB Dataloader

Software that loads parts onto the EFB device. Administrators can load parts from a detected drive, a distributed package, or a specific directory.

Electronic Flight Bag (EFB)

Software that displays information electronically in the cockpit. The types of displayed information depend on a company's subscriptions and preferences.

Electronic Flight Folder (EFF)

An electronic flight-briefing package that replaces day-of-flight paper documentation.

Electronic Logbook

An application for recording and tracking observed defects on the airplane.

F

FMC/FMS

Flight Management Computer or Flight Management System. A computer system that uses a large database to allow routes to be pre-programmed and fed into the system by a data loader. The system is constantly updated about position accuracy by reference to conventional navigation aids. The sophisticated program and its associated database ensure that the appropriate aids are automatically selected during the information update cycle.

Full dataset

A complete set of data for a subscription.

H

heading up/track up orientation

A display orientation in which an application displays a map or chart so that it aligns the aircraft's current ground track angle with the vertical axis of the display. The map or chart moves under a stationary own-ship symbol. This orientation is available only when the aircraft is on the ground and accurate positioning information is available to the FMS.

I

International Air Transport Association (IATA)

An organization that is involved in passenger, cargo, and civil aviation and airport matters, including safety, efficiency, and standardization practices. The IATA web site is www.iata.org.

International Civil Aviation Organization (ICAO)

A specialized, United Nations agency that develops the principles and techniques of international air navigation, and fosters planning and development of international civil air transport. The ICAO web site is www.icao.org.

M

maintenance personnel

Personnel who load and install applications and data onto the EFB for their specific carriers. Maintenance personnel might also respond to pilots who receive system messages on the EFB display screen.

mid-cycle chart revision

An update or change made to a chart that becomes effective in the middle of a database release cycle.

N

Night mode

A display option in which document text displays in white on a dark background. This mode is useful when the cockpit is dark.

non-normal status

Certain EFB screens are reserved for system messages that appear in the top left corner to indicate that a fault occurred or an application needs attention. non-normal status indicators include FAULT, MEMO, and MSG.

north-up orientation

A display orientation in which an application displays a map or chart so that the north direction points to the top of the display. The map or chart remains stationary and the own-ship symbol moves.

Notice to Airmen (NOTAM)

A notice (not known in advance to publicize by other means) that contains information about the establishment, condition or change in any aeronautical facility, service, procedure or hazard; or timely knowledge that is essential to personnel concerned with flight operations.

O

Onboard Performance Tool

An EFB application that assists pilots in the aircraft's performance calculations and analysis. It displays takeoff and landing performance data that is calculated for specific prevailing conditions and the aircraft type on which the EFB is installed.

origin airport

The airport from which the flight originates.

own-ship position

The location of the own-ship symbol on a map in the Airport Moving Map application.

own-ship symbol

A graphical representation of the aircraft on a map in the Airport Moving Map application.

P

parts

Data, applications, or configuration files that are formatted for loading onto EFB devices.

position data

Aircraft position data provided by the aircraft data interface.

R

range ring

A circle that surrounds the own-ship symbol in the Airport Moving Map application. It is used to provide a visual sense of scale.

S

split mode

A chart display option in the Terminal Charts application in which the plan view displays at the top of the screen while the Briefing Strip™, profile view, or minimums display at the bottom of the screen. In Split mode, the bottom of the screen can cycle through the chart's Briefing Strip™, profile, and minimums frames. After all three frames display individually with the plan view, they display together without the chart.

system messages

Messages that are generated by the EFB to inform the user that an event occurred, indicate a condition, or

suggest a recommended course of action to resolve an issue.

T

Terminal Charts

An EFB application that displays charts from the current electronic database subscription. Available charts include chart change notices, airport, airspace, departure, arrival, and approach charts.

U

un-split mode

A chart display option in the Terminal Charts application in which the plan view displays without a separate Briefing Strip™, profile view, or minimums display at the bottom of the screen. The Briefing Strip™, profile view, and minimums can be viewed by scrolling through the chart.

UTC

Coordinated Universal Time.

V

Video Surveillance (FDEVSS)

An EFB application that provides pilots with the ability to view video feeds from specific cameras in the aircraft.

Virtual Keyboard

An operational keyboard that displays on EFB screens.

W

WOW

Weight on wheels.

X

Extensible Markup Language (XML)

An open standard for describing data. For example, XML tags define the start and end of a section of a document, but they do not define the appearance of the chapter title or of the headings within the chapter.