operator's guide

IFIS-5000
Integrated Flight Information System

Notice

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INTRODUCTION

This operator's guide describes the components and operation of the IFIS-5000 Integrated Flight Information System (IFIS). This guide is a supplement to the existing Pro Line 21 Continuum Avionics System Pilot's Guide, and covers only the features installed with the IFIS. It is not intended to be a training manual. It is a guide to understanding the system as designed by Rockwell Collins Business and Regional Systems. The general operational information in this guide must also be supplemented with information contained in the Aircraft Flight Manual (AFM).

The IFIS-5000 system overview is contained in the OVERVIEW chapter. Basic operating procedures for the IFIS-5000 are described in the IFIS-5000 DISPLAY OPERATIONS chapter, and information on the operation of the Cursor Control Panel (CCP) is contained in the CONTROLS chapter. The MENUS AND DISPLAYS chapter describes the MFD displays for the IFIS-5000 system. The IFIS-5000 MENU NAVIGATION chapter contains diagrams of the IFIS-5000 menu navigation. The diagrams are in foldout format and are designed to assist the operator with understanding how the system interacts with CCP control inputs and on-screen menu selections. Information on customer support can be found in the SUPPORT INFORMATION chapter at the back of the book.

To submit comments regarding this manual, please contact:

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350 Collins Rd NE
Cedar Rapids, IA 52498-0001

Attn: Technical Operations M/S 153-250

or send email to: techmanuals@rockwellcollins.com

SAFETY SUMMARY

CAUTION

Some aircraft operators can have special procedures that are different from those given in this operator's guide. Refer to the applicable aircraft flight manual for instructions specified for your aircraft.

CAUTION

Be careful if you wear sunglasses with lenses that cause you not to see some colors. These types of lenses can have an unwanted effect on how some colors show on the EFIS displays. You cannot see some items on the display when you wear these types of sunglasses. Also, the color of some items can change. For example, some blue lenses can cause a magenta display item to show as red. If the displays are read incorrectly, possible damage to the equipment could occur.

CAUTION

Monitor all instruments to identify if a malfunction occurs. The IFIS-5000 and related components operate as a system and usually give the flight crew an indication when a malfunction occurs. But the flight crew must also know that it is not possible to monitor the system for all possible malfunctions. Also, incorrect operation could occur without an indication of a malfunction.

NOTICES

NOTE

Defects that you can see on the display surface of the AFD-3010, AFD-5220, or AFD-3320 are permitted. But these defects must not cause a distraction or make the flight crew read the display incorrectly. Also, defects you cannot see in an operational format from a minimum view distance are permitted.

Defective ON or defective OFF rows or columns can make servicing of the AFD-3010, AFD-5220, or AFD-3320 necessary. Groups (three or more adjacent elements) of defective ON elements are not permitted. Defective OFF elements are permitted if they do not make the flight crew read the display incorrectly or cause distraction.

The number of defective ON elements that are permitted include no more than: six red, six green, 10 blue, or five sets of two adjacent defects. The number of defective OFF elements that are permitted include no more than: five sets of two adjacent defects, one set of three adjacent defects, or 30 defective OFF elements.

LIST OF ACRONYMS AND ABBREVIATIONS

A/C	Aircraft
ADF	Automatic Direction Finder
ADV	Advance
AFD	Adaptive Flight Display
AFM	Airplane Flight Manual
AIRMET	Airman's Meteorological Advisory
ATC	Air Traffic Control
CCP	Cursor Control Panel
CDU	Control Display Unit
CMU	Communications Management Unit
COM	Communication
CONUS	Continental United States
CPN	Collins Part Number
CTA	Control Area
E-Chart	Electronic Chart
E-Map	Electronic Map
ECU	External Compensation Unit
EFIS	Electronic Flight Instrument System
EIS	Engine Indicating System

ESC	Escape
FAA	Federal Aviation Administration
FCS	Flight Control System
FMS	Flight Management System
FSU	File Server Unit
GEO-POL	Geopolitical
GPS	Global Positioning System
GWX	Graphical Weather
HF	High Frequency
IAPS	Integrated Avionics Processor System
ICAO	International Civil Aviation Organization
ID	Identifier
IFIS	Integrated Flight Information System
ILS	Instrument Landing System
km	Kilometer(s)
LSK	Line Select Key
LX	Lightning
m	Meter(s)
MDC	Maintenance Diagnostic Computer
MET	Meteorological
METAR	Aviation Routine Weather Reports
MFD	Multifunction Display
NAV	Navigation
NAVAID	Navigational Aid
NEXRAD	Next Generation Weather Radar
NM	Nautical Mile(s)
NOTAM	Notices To Airmen
PFD	Primary Flight Display
PPOS	Present Position
RDR	Radar
RIU	Radio Interface Unit
SIGMET	Significant Meteorological Advisory
sm	Statute Mile(s)
TAF	Terminal Area Forecast
TAWS	Terrain Awareness Warning System
TCA	Terminal Control Area
TCAS	Traffic Collision Avoidance System
TERR	Terrain display from TAWS
TFC	Traffic display from TCAS
TFR	Temporary Flight Restriction
TMA	Terminal Maneuver Area

UTC	Coordinated Universal Time
WGS-84	World Geodetic System 1984
WPT	Waypoint
WX	Weather
XM	XM Satellite Weather Service

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OVERVIEW

INTRODUCTION

Rockwell Collins created the IFIS-5000 system to provide situational awareness information to the flight crew while keeping the amount of paper required in the cockpit to a minimum. The situational awareness functions, displayed on a Multifunction Display (MFD), include electronic Jeppesen charts, graphical weather images datalinked to the aircraft, and map overlays that include geopolitical boundaries, airspace, and airways. The figure on page 2-4 shows the components of the IFIS-5000, as well as other interfacing components.

NOTE

The IFIS-5000 system provides supplemental aircraft situational awareness information. It is not intended as a means for navigation or weather avoidance.

NOTE

The Rockwell Collins Avionics units described in this operator's guide show typical operation and capabilities. The non-Rockwell Collins Avionics units (e.g., Flight Management Computer related to chart line capability) may or may not cause typical operation. Refer to the appropriate vendor documentation for specific details on the non-Rockwell Collins Avionics units.

NOTE

With a non-Rockwell Collins FMS installed, the following issues should be noted:

The GWX-5000 option is not available because it requires a Rockwell Collins CDU to request the graphical weather images through the datalink system.

XM main menu TAF/METAR Report for International Civil Aviation Organization (ICAO) airport identifiers of the origin, destination and alternate are those that are entered manually on the Chart Main Index menu.

FMS map background symbology selections are displayed on the second page of the E-Map menu when on the PPOS or PLAN Map. The first page of the E-Map menu will display IFIS background symbology. A second push of the MENU button on the CCP will bring up the second page allowing the user to select the FMS map background symbology for display. The type of FMS map background symbology is dependent on the FMS type.

MDC Diagnostics and Checklist require an MDC to be installed for these functions to be available.

Chartlink will not function. The main menu will display CHART PRESETS in the shortcut data source field. ICAO airport identifiers will need to be entered manually by the user. (For aircraft with smart entry capability, manual entry of ICAO airport identifiers are easier for the user.)

FMS NAV database information will not be displayed on the Database Effectivity page.

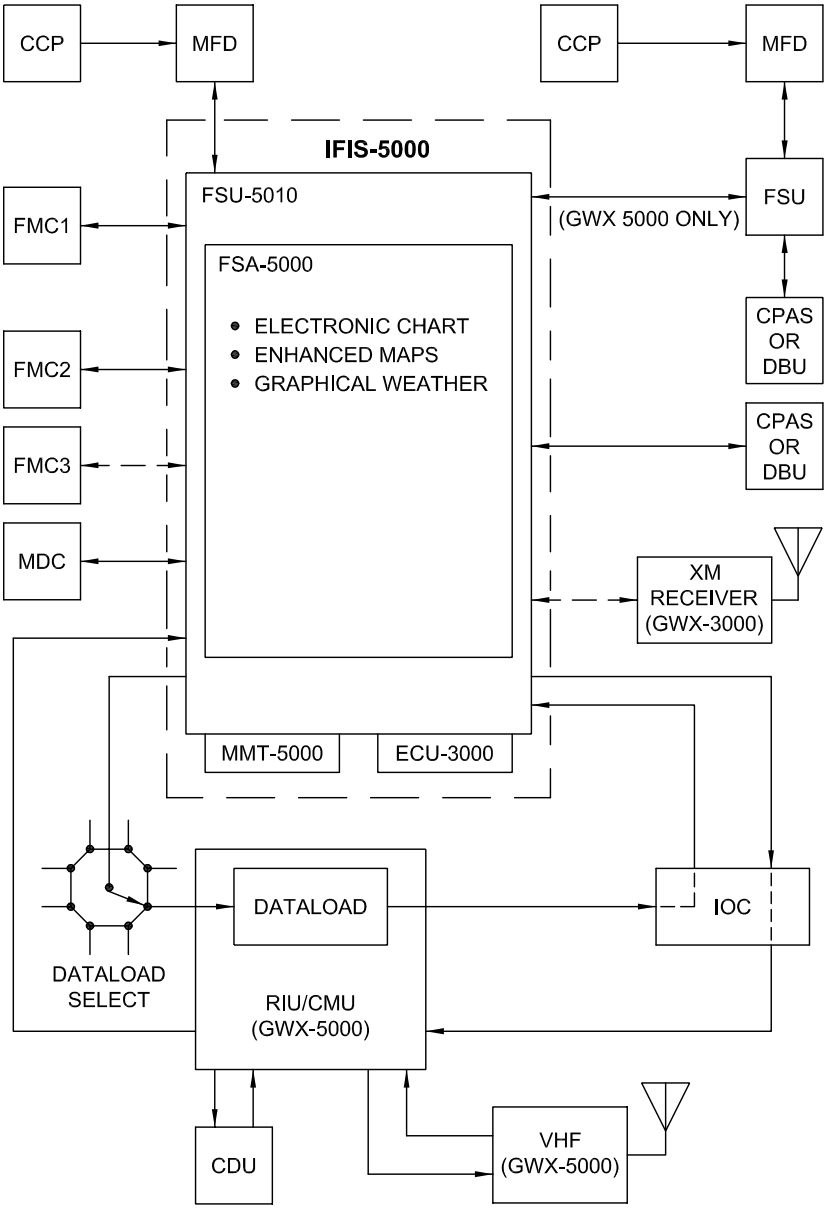
SYSTEM DESCRIPTION

The IFIS-5000 is an evolution of the current Rockwell Collins Pro Line 21 Continuum system. Specifically, it is a Multifunction Display (MFD) upgrade that adds electronic charts, datalink Graphical Weather (GWX), and enhanced map features to the traditional displays.

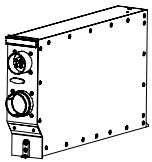
KEY OPERATING FEATURES

- Electronic Charts (E-Charts) available for display on the MFD.
- E-Chart one button selection/de-selection.
- Automated E-Chart selection linked with FMS flight plan.
- Datalink graphical weather available for display on the MFD (or NEXRAD overlaid on the MFD Plan Map).
- Enhanced map data (Geopolitical, Airways, Airspace, etc.) available for display on FMS PPOS Map and Plan Map.

Figure 2-1 IFIS-5000 Block Diagram

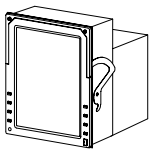


COMPONENTS



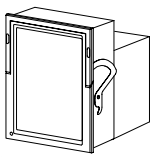
FSU-5010 File Server Unit

The FSU-5010 provides the processing and storage for all IFIS functions. The FSU communicates with the cockpit displays via an Ethernet bus.



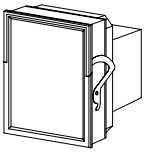
AFD-3010E Adaptive Flight Display

The AFD-3010 is normally installed for the pilot and copilot side PFDs. The AFD-3010E is installed for the pilot and copilot side MFDs. The AFD-3010E has an Ethernet card to allow communication with the FSU, which is necessary for the E-Chart, GWX, and E-Maps functions. The AFD-3010E will function normally if installed in the PFD position. The AFD-3010 (without the Ethernet card) can be used in the MFD position, but the E-Chart, GWX, and E-Maps functions will not be available in this configuration.



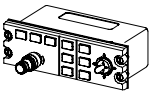
AFD-3320 Adaptive Flight Display

The AFD-3320 is normally installed for the pilot and copilot side PFDs. The AFD-3320 is installed for the pilot and copilot side MFDs. The AFD-3320 has an Ethernet card to allow communication with the FSU, which is necessary for the E-Chart, GWX, and E-Maps functions. The AFD-3320 will function normally if installed in the PFD position. The AFD-3320 (without the Ethernet card) can be used in the MFD position, but the E-Chart, GWX, and E-Maps functions will not be available in this configuration.



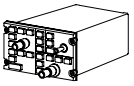
AFD-5220E Adaptive Flight Display

The AFD-5220 is normally installed for the pilot and copilot side PFDs. The AFD-5220E is installed for the pilot and copilot side MFDs. The AFD-5220E has an Ethernet card to allow communication with the FSU, which is necessary for the E-Chart, GWX, and E-Maps functions. The AFD-5220E will function normally if installed in the PFD position. The AFD-5220 (without the Ethernet card) can be used in the MFD position, but the E-Chart, GWX, and E-Maps functions will not be available in this configuration.



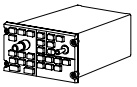
CCP-3000 Cursor Control Panel

The CCP-3000 controls the IFIS functions via MFD onscreen menus. Dedicated controls are provided for chart selection, a joystick for panning across the chart, quick MFD format access keys, and MFD menu controls.



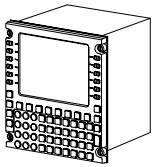
CCP-3310 Cursor Control Panel

The CCP-3310 controls the IFIS functions via MFD onscreen menus. Dedicated controls are provided for chart selection, a joystick for panning across the chart, quick MFD format access keys, and MFD menu controls.



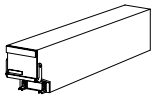
CCP-50XX Cursor Control Panel

The CCP-50XX controls the IFIS functions via MFD onscreen menus. Dedicated controls are provided for chart selection, a joystick for panning across the chart, quick MFD format access keys, and MFD menu controls.



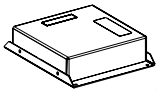
CDU Control Display Unit

The CDU provides centralized control and display functions for the Flight Management System (FMS) as well as the COM, NAV, ADF, HF, ATC transponder, and TCAS subsystems. Text messaging can also be done via the CDU. A pilot side and copilot side CDU is installed. Control selections and display data are synchronized so that selections made on the same side CDU show on the opposite side CDU.



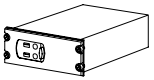
CMU-4000 Communication Management Unit/RIU-40X0 Radio Interface Unit

The CMU-4000 and RIU-40X0 products provide the same functionality. The RIU-40X0 is used in datalink installations with a Rockwell Collins integrated audio system. The CMU-4000 is used with non-integrated audio systems. Either product (CMU or RIU) provides the airborne interface between the datalink communications network ground stations and the aircraft. The CMU or RIU is required for installations with GWX-5000 systems.



XM Receiver and Antenna

The XM Satellite receiver and antenna provide the interface between the XM Satellite Radio weather service and the aircraft for aircraft with the GWX-3000 weather system. The XM receiver transmits weather data from XM Satellite Radio to the FSU, which processes the data for display on the MFD.

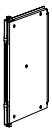


Data Base Unit (DBU) (optional)

The DBU-5000 is a data loader and interface for the Line Replaceable Units (LRU) on the aircraft. Depending on the installation, it may be mounted in the aircraft cockpit or in an avionics bay. The DBU transfers files between aircraft LRU and removable storage media (for example the USB 2.0 memory device).

Collins Portable Access Software (CPAS)

The CPAS is installed on a laptop computer and uses an Ethernet cable to connect to the File Server Unit (FSU). The CPAS and laptop are used to upload FSU data bases, load the monthly data base updates to the Flight Management Computers (FMCs), upload/download user waypoints and routes from the FMC, upload diagnostic tables and checklist files to the Maintenance Diagnostic Computer (MDC), and download maintenance data from the MDC.



Maintenance Diagnostics Computer (MDC)

The MDC uses internal fault isolation logic that is based on avionics unit failure data to identify failed or degraded avionics units. The fault logic is updated via the DBU or CPAS. The MDC supplies fault information to the MFD and DBU or CPAS via the Integrated Avionics Processor System (IAPS) and system bus structure. The MDC is physically located in the IAPS card cage.

KEY PERFORMANCE FEATURES

Several system status pages are available for display on the MFD. Those pages include:

- Charts subscription status
- Database status
- File Server Unit (FSU) configuration
- Maintenance Diagnostic Computer (MDC) diagnostic codes
- Configuration access
- Flight Control System (FCS) diagnostics.

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E-Charts Operation (AFD-3010E, AFD-5220E, AFD-3320)

E-CHARTS

RATIONALE:

The E-Charts feature allows the flight crew to view electronic charts in a format that mimics paper charts.

SUMMARY:

The E-Chart format provides the ability to show an electronic chart on the MFD. The E-Charts are selected automatically by the FMS when a flight plan is entered or are selected manually by the flight crew. The available charts are listed on the CHART MAIN INDEX. The CCP controls are used for chart selection and entering data manually. When aircraft position data is available, a moving aircraft symbol shows on E-Charts that are geographically-referenced. A non-geographically referenced chart has a magenta aircraft symbol with a circle and slash on the top right hand corner of the chart. In version -103/003 or 104/004 FSA4.X, the aircraft symbol shows for ICAOs in the USA only. For version -105/005, FSA5.0, the aircraft symbol shows for any ICAO that is World Geodetic System 1984 (WGS-84) compliant.

PRECONDITIONS:

The databases associated with E-Charts must be loaded into the FSU before the system is functional. Make sure all pertinent information (subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

▼ CHECKLIST:

1	To show an E-Chart automatically, enter a flight plan into the FMS.
2	To manually select a chart, follow the step(s) for the type of chart to be displayed.

DISPLAY CHART

SUMMARY:

Controls on the CCP are used to select the display of an E-Chart on the MFD.

▼ CHECKLIST:

1	To display a chart manually, follow either the Chart List Off or the Chart List On checklist.

CHART LIST OFF

▼ CHECKLIST:

1	Push the CHART button on the CCP to show the last displayed chart.
2	Turn the DATA knob on the CCP to cycle through the list of linked charts associated with the airport identified on the displayed chart. • Turn the knob clockwise to show the next chart on the list of linked charts. The next chart function stops at the bottom of the list of linked charts (does not wrap to the top of the list).

- Turn the knob counterclockwise to show the previous chart on the list of linked charts. The previous chart function stops at the top of the list of linked charts (does not wrap to the bottom of the list).

CHART LIST ON

▼ CHECKLIST:

1 Push the MENU button on the CCP to show the CHART MAIN INDEX.

2 Turn the MENU ADV knob to position the menu cursor around the desired chart.

3 Push the PUSH SELECT button to select the chart for display.

CHART MAIN INDEX

SUMMARY:

The CHART MAIN INDEX shows the list of shortcuts to the charts needed for the instrument procedures associated with the origin, destination, and alternate airport. Selecting one of these shortcuts causes the associated chart to show. The origin, destination, and alternate airport entries are supplied by the FMS when a compatible FMS is installed and a flight plan is entered. The OTHER AIRPORT entry is always entered by the flight crew on this menu.

PRECONDITIONS:

The origin, destination, and alternate airport entries are entered by the flight crew when a compatible FMS is not installed.

▼ CHECKLIST:

1	To show the CHART MAIN INDEX, do either of the steps that follow: • With no chart menus in view, push the MENU button on the CCP • When the Chart Type, Chart List, or NOTAM menu is in view, push the ESC button on the CCP.

SEARCH FOR AIRPORT

▼ CHECKLIST:

1	With the CHART MAIN INDEX in view, turn the MENU ADV knob on the CCP to position the menu cursor around the desired entry field
2	Push the PUSH SELECT button to activate the text entry cursor and to position the cursor around the first character of the entry field.

NOTE

In version -103, -104, upon PUSH SELECT button operation the first character of the entry field defaults to K_ _ _.

3 Turn the DATA knob on the CCP to change the character. Clockwise rotation advances the character field. Counterclockwise rotation decreases the character field.

TECH DETAIL

In software -105, -106, or -108, when entering a character at any position, the remaining character fields are updated to the first valid IDENT that matches the currently entered position.

4 Turn the MENU ADV knob to move the cursor to the next character field. Clockwise rotation moves the cursor to the right; counterclockwise rotation moves the cursor to the next character on the left.

TECH DETAIL

In software -105, -106, or -108, after a character has been updated, only those characters that can follow the already entered character data (based on the IDENT information in the database) appear in the list of available choices for subsequent character positions.

5 Repeat steps 3 and 4 to enter the four letter ICAO airport identifier.

6 Do either of the steps that follow to end the data entry mode:

TECH DETAIL

When the data entry mode is ended, the cursor expands to surround the whole of the data entry field and resumes operation as a menu cursor.

6.1	Push the PUSH SELECT button on the CCP to finish entering the airport ID and have the system process the information.
6.2	Push the ESC button to cancel data entry mode and keep the previous value.

DISPLAY SELECTED CHART

▼ CHECKLIST:

1	With the CHART MAIN INDEX in view, turn the MENU ADV knob to position the menu cursor around the desired shortcut control.
2	Push the PUSH SELECT button momentarily.

CHANGE SHORTCUT

SUMMARY:

The change shortcut action allows the flight crew to change an existing shortcut or to fill a blank shortcut. When the change shortcut action is activated, a submenu comes into view. The submenu contains a list of shortcut items that can be selected. Other menus within the submenus may also be accessed from this menu.

▼ CHECKLIST:

1	Turn the MENU ADV knob to position the menu cursor around the desired shortcut.

2 If the shortcut text field does not contain a shortcut, push and release the PUSH SELECT button. If the shortcut text field contains a shortcut, push and hold the PUSH SELECT button for more than one second.

3 From either the Chart Type menu or the Chart List, push the PUSH SELECT button to select the desired chart to fill the shortcut field.

POST CONDITIONS:

The change shortcut action is completed when a shortcut item is selected from one of the submenus. When the change shortcut action is completed, the submenus are closed and the selected shortcut item shows in the shortcut text field.

CANCEL CHANGE SHORTCUT

SUMMARY:

The change shortcut action may be canceled. When the change shortcut action is canceled, the last selected shortcut item shows in the shortcut text field, or the shortcut text field is blank if no shortcut item had been previously selected.

▼ CHECKLIST:

1 Do one of the steps that follow to cancel the change of the shortcut:

- Push the ESC button to navigate back to the previous menu.
- Push the MENU button to close all menus.
- Make another control selection (removes the current chart format).

SET DAY OR NIGHT COLOR

▼ CHECKLIST:

1. Turn the MENU ADV knob on the CCP to position the menu cursor around the CHART DIMMING line item.
2. Push the PUSH SELECT button or turn the DATA knob on the CCP.

EXIT CHART MAIN INDEX

▼ CHECKLIST:

1. Push the MENU or ESC button on the CCP to exit the CHART MAIN INDEX and show the E-Chart that was previously in view.

CHART TYPE MENU

SUMMARY:

The Chart Type menu is accessed via the ANY CHART selection on the CHART MAIN INDEX. The Chart Type menu shows a list of the chart types available for the selected airport. Selecting an item from the list causes the Chart List menu to come into view. The Chart List menu shows a list of the charts that are available of the selected type (e.g., APPROACH) for selected airport.

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the ANY CHART shortcut for the desired ORIGIN, DESTINATION, ALTERNATE, or OTHER AIRPORT.
2	Push and hold the PUSH SELECT button on the CCP to select the Chart Type menu. Only necessary if shortcut contains Chart.

SELECT CHART TYPE

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the desired chart type.
2	Push the PUSH SELECT button on the CCP to select the chart type.

EXIT CHART TYPE

▼ CHECKLIST:

1 To exit the Chart Type menu, do either of the steps that follow:

- Push the MENU button on the CCP to show the chart that was previously in view.
- Push the ESC button on the CCP to show the CHART MAIN INDEX.

CHART LIST

SUMMARY:

The Chart List is accessed via the Display Chart or the CHART MAIN INDEX or Chart Type menus. The Chart List shows a list of charts of the selected type (e.g., APPROACH) for the selected airport. When a chart is selected via the Display Chart method, the newly selected chart comes into view on the MFD. When a chart is selected, the associated shortcut on the CHART MAIN INDEX is updated to the new selection.

▼ CHECKLIST:

1	To display the Chart List, select Via Display Chart, Via Chart Main Index, or the Via Chart Type menu checklist.

VIA DISPLAY CHART

PRECONDITIONS:

A chart must be in view on the MFD. Refer to the figure on page 10-9.

▼ CHECKLIST:

1	With an E-Chart in view, push the PUSH SELECT button on the CCP to display the Chart List.

VIA CHART MAIN INDEX

PRECONDITIONS:

The CHART MAIN INDEX should be in view on the MFD. Refer to the figure on page 10-5.

▼ CHECKLIST:

1. Turn the MENU ADV knob on the CCP to position the menu cursor around the desired chart type (e.g., DEPARTURE) for the origin or destination airport.
2. Push and hold the PUSH SELECT button on the CCP.
3. To select a chart from the Chart List, push the PUSH SELECT button on the CCP.

VIA CHART TYPE MENU

PRECONDITIONS:

The Chart Type menu should be in view on the MFD. Refer to the figure on page 10-7.

▼ CHECKLIST:

1. Turn the MENU ADV knob on the CCP to position the menu cursor around the desired chart type (e.g., DEPARTURE).
2. Push the PUSH SELECT button on the CCP.
3. To select a chart from the Chart Type menu, push the PUSH SELECT button on the CCP.

SELECT A CHART FROM THE CHART LIST

SUMMARY:

Selecting a chart displays the chart on the MFD and updates the associated shortcut control on the Chart Main Index.

▼ **CHECKLIST:**

1 Turn the MENU ADV knob on the CCP to position the menu cursor around the desired chart.

NOTE

When more than one page of charts is available, the MORE CHARTS and PREVIOUS CHARTS selections are available along the top and bottom of the menu list.

1.1 Turn the MENU ADV knob on the CCP to position the menu cursor around the MORE CHARTS or PREVIOUS CHARTS control.

1.2 Push the PUSH SELECT button on the CCP to select the next page or previous page of charts.

2 Push the PUSH SELECT button on the CCP to select the chart.

EXIT CHART LIST

▼ **CHECKLIST:**

1 Push the MENU or ESC button on the CCP to exit the Chart List and show the chart previously in view.

NOTAMS MENU

SUMMARY:

The NOTAMS menu is accessed from the Chart Main Index. The CHART NOTAMS menu shows the Chart NOTAMs available for the selected airport. The page is broken into two fields, the NOTAM summary and NOTAM details. When more than one NOTAM is available for the selected airport, the selected NOTAM and total number of NOTAMs shows in the summary field. The selected NOTAM readout is also a data entry field that allows the user to select another NOTAM for viewing. The NOTAM type, effectivity, begin date and end date show in the summery field. The NOTAM text, as defined in the Jeppesen charts database, shows in the details field.

▼ CHECKLIST:

1 With the CHART MAIN INDEX in view, turn the MENU ADV knob on the CCP to position the menu cursor around the CHART NOTAMS shortcut for the desired airport (e.g., ORIGIN, DESTINATION, ALTERNATE, or OTHER AIRPORT).

2 Push the PUSH SELECT button on the CCP.

SELECT A NOTAM

▼ CHECKLIST:

1 Turn the DATA knob on the CCP to select the desired NOTAM.

TECH DETAIL

When the NOTAM page is in view and there is more than one NOTAM, the cursor is automatically positioned on the NOTAM number.

2 If the NOTAM exceeds the available space in the NOTAM details field, the NOTAM shows over multiple pages. To page up or down:

2.1 Turn the MENU ADV knob on the CCP to position the cursor window around the NOTAM page number.

2.2 Turn the DATA knob clockwise to increase the page number and counterclockwise to decrease the page number.

EXIT NOTAMS PAGE

▼ CHECKLIST:

1 Do either of the steps that follow to exit from the NOTAMS page:

- Push the ESC button on the CCP to exit the NOTAM page and show the CHART MAIN INDEX.
- Push the MENU button on the CCP to exit the NOTAM page and show the Display Chart format.

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IFIS-5000 Display Operation (AFD-3010E)

GRAPHICAL WEATHER (GWX-5000)

RATIONALE:

The Graphical Weather (GWX-5000) function allows the flight crew to view graphical weather images on the MFD. The GWX function also allows the flight crew to overlay the NEXRAD image on the Plan Map.

SUMMARY:

The GWX format provides the ability to show one stored GWX image at a time on the MFD. The GWX images are uplinked via VHF datalink system from the Information Service Provider (Universal Weather). New GWX images are requested by the flight crew via controls on the CDU (refer to the Rockwell Collins Corporate Datalink System CMU-4000/RIU-40X0 operator's guide, CPN 523-0790499, for more information on requesting weather images). A list of saved and available GWX images shows on the MFD when requested by the flight crew. Using controls on the CCP, the flight crew selects the desired GWX image to show on the MFD.

PRECONDITIONS:

To determine which version of Graphical Weather is installed, go to the FILE SERVER CONFIGURATION page (FSU CONFIGURATION page). To access the FSU CONFIGURATION page refer to the FSU configuration page on page 4-30. The Universal Weather installation is designated GWX-5000.

The databases associated with Graphical Weather must be loaded into the FSU before the system is functional. Make sure all pertinent information (subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

▼ CHECKLIST:

1 To view a GWX image, follow either the Display Last GWX Image checklist on page 4-3 or the Select New GWX Image checklist that starts on page 4-3.

DISPLAY LAST GWX IMAGE (AFD-3010E)

SUMMARY:

The display last GWX image function allows the flight crew to select the GWX display format with the last viewed GWX image in view on the MFD.

▼ CHECKLIST:

1 Push the lower format line select key on the MFD to display the lower display FORMAT list.

TECH DETAIL

The complete list of possible lower MFD formats, in order, is ROSE, ARC, PPOS (Present Position Map), PLAN (Plan Map), GWX, and TCAS (TCAS Only), depending on the installed options.

2 Push the FORMAT line select key as necessary to cycle the display to the next available format until GWX is selected. The GWX image that shows on the MFD when the GWX format is selected is the last displayed GWX image.

SELECT NEW GWX IMAGE (AFD-3010E)

SUMMARY:

The select GWX image function allows the flight crew to select from a list of available images a particular GWX image to be displayed on the MFD when the GWX format is selected. The GWX format must be selected on the MFD first. The image list format on the AFD-3010E and the AFD-5220E are similar. The illustration below shows the AFD-3010E. The list of available images includes:

- NEXRAD
- TOPS/MOVEMENT
- WINDS ALOFT
- ICING

- WX DEPICTION
- TURBULENCE.

▼ CHECKLIST:

1 Push the lower format line select key on the MFD to select the lower display FORMAT list.

2 Push the FORMAT line select key as necessary to cycle the display to the next available format until GWX is selected. The GWX image that shows on the MFD when the GWX format is selected is the last displayed GWX image.

3 Push the MENU button on the CCP to display the list of available GWX images.

4 Turn the MENU ADV knob on the CCP to position the menu cursor around the desired list item. Turning the knob clockwise moves the cursor down the page; turning the knob counterclockwise moves the cursor up the page.

NOTE

The menu cursor is initially placed at the top list item. When a new linked image is received, the menu cursor is moved automatically to the new list item.

NOTE

When more than one page of images is available, a MORE IMAGES and PREVIOUS IMAGES selection is available on the menu.

4.1 Turn the MENU ADV knob on the CCP to position the menu cursor around the MORE IMAGES or PREVIOUS IMAGES control.

4.2	Push the PUSH SELECT button on the CCP to display the next or previous page with the list of available images.
5	Push the PUSH SELECT button on the CCP to select the highlighted list item.

POST CONDITIONS:

When the image has been selected from the GWX image list, the selected image is in view on the MFD.

GRAPHICAL WEATHER (GWX-3000 AND GWX-3001)

RATIONALE:

The Graphical Weather (GWX-3000 & GWX-3001) function allows the flight crew to view graphical weather images and textual weather reports on the MFD. The GWX function also allows the flight crew to overlay the NEXRAD image on the Plan Map.

SUMMARY:

The GWX format provides the ability to show GWX images or reports on the MFD. The GWX images/reports are provided by Baron Services via a satellite Information Service Provider (XM Satellite Weather Service). Using controls on the CCP, the flight crew selects the desired GWX images or reports to show on the MFD.

PRECONDITIONS:

To determine which version of graphical weather is installed, go to the FILE SERVER CONFIGURATION page (FSU CONFIGURATION page). To access the FSU CONFIGURATION page refer to File Server Configuration on page 4-30. The XM weather installation is designated GWX-3000, or GWX-3001 depending on the software version.

The databases associated with Graphical Weather must be loaded into the FSU before the system is functional. Make sure all pertinent information (subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information

chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

▼ CHECKLIST:

1 To view a GWX image, follow either the Display Last GWX Image checklist on page 4-6 or the Select New GWX Image checklist that starts on page 4-7.

DISPLAY LAST GWX IMAGE (AFD-3010E)

SUMMARY:

The display GWX image function, for the AFD-3010E and AFD-5220E, allows the flight crew to select the GWX display format with the last viewed GWX image in view on the MFD.

▼ CHECKLIST:

1 Push the lower format line select key on the MFD to select the lower display FORMAT list.

TECH DETAIL

The complete list of possible lower MFD formats, in order, is ROSE, ARC, PPOS (Present Position Map), PLAN (Plan Map), GWX, and TCAS (TCAS Only), depending on the installed options.

2 Push the FORMAT line select key as necessary to cycle the display to the next available format until GWX is selected. The GWX image that shows on the MFD when the GWX format is selected is the last displayed GWX image.

DISPLAY NEW GWX IMAGE OR TEXT WEATHER (AFD-3010E)

SUMMARY:

The GRAPHICAL WEATHER menu allows the flight crew to select a new GWX image or textual weather for display on the MFD when the GWX format is selected (AFD-3010E and AFD-5220E). The available menu items include:

- TAF (text)
- METAR (text)
- SIGMET (text)
- AIRMET (text)
- Animated NEXRAD (-105, -106, -108)
- Winds Aloft (-108)
- Satellite (-108)
- Overlay Selections (-108)
- NEXRAD overlay
- Echo Tops overlay
- METAR overlay
- Airport Idents overlay
- SIGMETS overlay
- A/C Flight Information (-105, -106, -108).

▼ CHECKLIST:

1	Push the FORMAT line select key R1 on the MFD to select the lower display format list.
2	Push the FORMAT line select key as necessary to cycle the display to the next available format until GWX is selected. The GWX image that shows on the MFD when the GWX format is selected is the last GWX image that was in view.
3	Push the MENU button on the CCP to show the GRAPHICAL WEATHER menu on the MFD.

4 Follow the steps of the appropriate checklist to select the desired image or text for display on the MFD.

- Select TAF/METAR Report checklist on page 4-8 to display a textual TAF or METAR report.
- Select SIGMET/AIRMET Report checklist on page 4-9 to display a textual SIGMET or AIRMET report.
- Select ANIMATED NEXRAD checklist on page 4-10 to display animated NEXRAD images (-105, -106, -108).
- Select GWX Image Overlay checklist on page 4-13 (-103, -104, -105, -106) or page 4-14 (-108) to display one of the GWX overlays.
- Select WINDS ALOFT checklist on page 4-12 to display the WINDS ALOFT image (-108).
- Select SATELLITE checklist on page 4-12 to display the SATELLITE image (-108).

5 Push the PUSH SELECT button on the CCP to select the highlighted list item.

POST CONDITIONS:

When the image/report has been selected from the appropriate menu, the selected image or report is in view on the MFD.

SELECT TAF/METAR REPORT

SUMMARY:

The GRAPHICAL WEATHER menu displays TAF/METAR REPORTS menu selections for the ORIGIN, DESTINATION, ALTERNATE, and OTHER airports. When an airport is selected, a list of TAF and METAR reports available for that airport shows, listed in order of most recent to oldest. Selecting a TAF or METAR displays that report on a submenu page on the MFD.

PRECONDITIONS:

The checklist that follows begins on the GRAPHICAL WEATHER menu page on the MFD:

▼ CHECKLIST:

1 Turn the MENU ADV knob to position the cursor around the airport selection under the TAF/METAR REPORTS menu title for which TAF/METAR reports are desired.

NOTE

The airport IDs (DESTINATION, ALTERNATE) are supplied by the FMS and are based on the active flight plan. The identifier of the OTHER airport shows as dashes to indicate an airport may be entered by the flight crew. Refer to the Search for Airport checklist on page 3-4 for details on how to enter an airport ID into the data field.

2 Push the PUSH SELECT button on the CCP to show the appropriate airport page with the list of METAR reports for that airport.

3 Turn the DATA knob on the CCP to select the TAF reports page with the current TAF for that airport.

SELECT SIGMET/AIRMET REPORT

SUMMARY:

The GRAPHICAL WEATHER menu displays NATIONAL MET REPORT menu selections for SIGMET and AIRMET reports. When a report type is selected, a list of either SIGMET or AIRMET reports shows. SIGMET reports are listed in alphabetical order by identifier. AIRMET reports are listed in the order they are received. Selecting a SIGMET or AIRMET displays that report on a submenu page on the MFD.

PRECONDITIONS:

The checklist that follows begins on the GRAPHICAL WEATHER menu page on the MFD:

▼ CHECKLIST:

1 Turn the MENU ADV knob to position the cursor around either the SIGMET or AIRMET selection under the NATIONAL MET REPORTS menu listing.

2 Push the PUSH SELECT button on the CCP to show the appropriate reports page.

NOTE

If more than one report is available, the current page number and the total number of pages shows at the top on the menu list. The reports are ordered from most recent to oldest.

TECH DETAIL

A maximum of 50 active SIGMET reports and 75 active AIRMET reports can be presented.

3 When more than one SIGMET or AIRMET report is available, turn the DATA knob to view all reports. Each turn of the DATA knob selects the next report page.

SELECT ANIMATED NEXRAD (-105, -106)

SUMMARY:

The animated NEXRAD state allows the flight crew to view a time elapsed sequence of weather images. The sequence of images runs in a loop using a minimum of three to a maximum of five valid NEXRAD images received from the datalink. The loop sequence runs until canceled. During normal operation, the system stores a snap shot of the NEXRAD and associated time stamp, every 15 minutes or greater,

as soon as the images become available. A maximum of five snap shots are stored. When ANIMATED NEXRAD mode is selected, the stored snapshots are in view as a series of frames in time sequence (oldest first), with a 0.7 second interval between each frame.

▼ CHECKLIST:

1 Push the FORMAT line select key R1 to show the lower display format list and to select the GWX display format.

2 Push the MENU button on the CCP to show the GRAPHICAL WEATHER menu on the MFD.

3 Turn the MENU ADV knob to position the cursor around the ANIMATED NEXRAD selection.

NOTE

The menu cursor indicator skips over the ANIMATED NEXRAD selection when there are not enough images to animate. The message ACQUIRING IMAGES is in view in the ANIMATED NEXRAD selection box on the GRAPHICAL WEATHER menu when not enough images are available to animate. The message AVAILABLE is in view in the ANIMATED NEXRAD selection box on the GRAPHICAL WEATHER menu when there are enough images available to animate.

4 Push the PUSH SELECT button on the CCP to show the animated NEXRAD.

5 To exit the NEXRAD FORMAT, do any of the items that follow:

- Push the MENU button on the CCP.
- Select another display format on the MFD.

SELECT WINDS ALOFT (-108)

SUMMARY:

The Winds Aloft feature displays wind speed and direction from the surface to 42 000 ft. in 3,000 ft. increments. The Winds Aloft data helps select optimized operating altitudes based on flight objectives. Flight crews benefit from graphic depictions of the actual temperature and direction of winds aloft to better determine the effect on aircraft performance, fuel loads, and arrival times.

▼ CHECKLIST:

1	Push the FORMAT line select key R1 to show the lower display format list and to select the GWX display format.
2	Push the MENU button on the CCP to show the GRAPHICAL WEATHER menu on the MFD.
3	Turn the MENU ADV knob to position the focus indicator around the WINDS ALOFT selection.
4	Push the PUSH SELECT button on the CCP to show the WINDS ALOFT.
5	To exit the WINDS ALOFT, do any of the item that follow: • Push the MENU button on the CCP. • Select another display format on the MFD.

SELECT SATELLITE (-108)

SUMMARY:

The infrared composite satellite image shows cloud layers from 5,000 ft. to 40 000 ft. in 5,000 ft. increments. High resolution NEXRAD can be displayed to show areas of various levels of precipitation. The

composite image provides the user with an around-the-clock tool to assess the flight conditions in turbulent day and night weather.

▼ CHECKLIST:

1	Push the FORMAT line select key R1 to show the lower display format list and to select the GWX display format.
2	Push the MENU button on the CCP to show the GRAPHICAL WEATHER menu on the MFD.
3	Turn the MENU ADV knob to position the focus indicator around the SATELLITE.
4	Push the PUSH SELECT button on the CCP to show the SATELLITE.
5	To exit the SATELLITE, do any of the items that follow: • Push the MENU button on the CCP. • Select another display format on the MFD.

SELECT GWX IMAGE OVERLAY

SUMMARY:

The GRAPHICAL WEATHER menu shows a list of overlays that are available to be displayed on the MFD when the GWX format is selected.

PRECONDITIONS:

The checklist that follows begins on the GRAPHICAL WEATHER menu page on the MFD:

▼ CHECKLIST:

1 Turn the MENU ADV knob to position the cursor around the overlay selection under the OVERLAYS menu list.

1.1 To view the overview legends, turn the MENU ADV knob to the OVERLAY LEGENDS selection item on the GRAPHICAL WEATHER menu page.

1.2 Push the PUSH SELECT button to the display the OVERLAY LEGENDS page on the MFD. The OVERLAY LEGENDS page shows all the symbology used on the overlays to assist the operator with interpreting the information that shows on the overlay.

1.3 To exit the OVERLAY LEGENDS page, push the ESC button on the CCP.

2 With the cursor positioned on the overlay selection, push the PUSH SELECT button on the CCP to turn the selected overlay ON or OFF.

SELECT GWX IMAGE OVERLAY (-108)

SUMMARY:

The OVERLAY SELECTIONS menu shows a list of overlays that are available to be displayed on the MFD when the GWX format is selected.

PRECONDITIONS:

The checklist that follows begins on the GRAPHICAL WEATHER menu page on the MFD:

▼ CHECKLIST:

1 Turn the MENU ADV knob to position the cursor around the OVERLAY SELECTIONS.

2 Push the PUSH SELECT button on the CCP. The OVERLAY SELECTIONS page shows all of the overlays that are available for selection.

3 With the cursor positioned on the overlay selection, push the PUSH SELECT button on the CCP to turn the selected overlay ON or OFF.

3.1 To view the overview legends, turn the MENU ADV knob to the OVERLAY LEGENDS selection item on the GRAPHICAL WEATHER menu page.

3.2 Push the PUSH SELECT button to the display the OVERLAY LEGENDS page on the MFD. The OVERLAY LEGENDS page shows all the symbology used on the overlays to assist the operator with interpreting the information that shows on the overlay.

NOTE

The OVERLAY LEGENDS page does not show the orange lightning strike overlay icon.

3.3 To exit the OVERLAY LEGENDS page, push the ESC button on the CCP.

MAP DISPLAYS (AFD-3010E)

RATIONALE:

The Map Displays allow the flight crew to graphically view the route of flight to help maintain situational awareness.

SUMMARY:

An FMS Present Position (PPOS) Map, FMS Plan (PLAN) Map, and optionally an FMS Three-Dimensional (3D) Map format are available to the flight crew. The FMS Present Position (PPOS) Map is a heading-up present position moving map. The FMS Plan (PLAN) Map is a fixed stationary map oriented to true-north. The optional 3D Map is a combined lateral vertical map with an selectable viewing angle. The map formats graphically depict the active FMS flight plan. The PPOS Map and PLAN Map also show FMS-supplied map background symbology such as navaids, intersections, and airports. The IFIS system adds additional background symbology to the PPOS and PLAN Maps. The available background symbology includes geopolitical data, airways, Temporary Flight Restriction (TFR) (-108), and airspace. NEXRAD images can be overlaid on the Plan Map format.

PRECONDITIONS:

The databases associated with E-Map symbology must be loaded into the FSU before the system is functional. The GWX database must be loaded before NEXRAD images are added to the map display. Make sure all pertinent information (e.g., subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

Both map formats require that a flight plan be entered into the FMS.

▼ CHECKLIST:

1	Push the lower format line select key on the MFD to select the lower display FORMAT list.

2 Push the FORMAT line select key as necessary to select the desired map format (PPOS or PLAN). Each push of the FORMAT line select key selects the next format option in the list.

TECH DETAIL

The complete list of possible lower MFD formats, in order, are ROSE, ARC, PPOS (Present Position Map), PLAN (Plan Map), GWX, and TCAS (TCAS only), depending on the installed options.

3 Follow the MAP DISPLAY OPTION checklist to turn display options on and off.

4 To exit either the PPOS or PLAN Map, select a different lower display format.

MAP DISPLAY OPTIONS

SUMMARY:

The MAP menu contains controls for the E-Maps and the map source. The MAP menu allows the flight crew to turn various map display options, such as geopolitical boundaries or airways, on and off. Line select keys on the MFD are used to control the display options when the MAP menu is in view.

▼ CHECKLIST:

1 Push the MENU button on the CCP to show the MAP menu on the MFD.

2 Push a line select key on the MFD to select or deselect a display option as follows:

- The GEO-POL selection is used to select the display of geopolitical boundaries. Each push of the GEO-POL line select key toggles the next option (ON or OFF).
- The AIRSPACE selection is used to select the display of controlled and restricted airspace. Each push of the AIRSPACE key toggles the next option (ON or OFF).
- The AIRWAYS selection is used to select the display of airways. Each push of the AIRWAYS key toggles the next option (HI, LO, or OFF).

NOTE

The DATA knob on the CCP can also be used to control map display options. With the cursor on the desired selection (GEO-POL, AIRWAYS, AIRSPACE), turn the DATA knob to toggle the next selection.

3 Push the FMS source line select key to select the map source (FMS1 or FMS2).

4 If GWX format is selected, the Plan Map menu adds a GWX ON OFF item.

MAP DISPLAY OPTIONS (-108)

SUMMARY:

The MAP MENU allows the flight crew to select the information that is displayed on the PPOS and Plan Map formats. The menu includes map source control and the following IFIS products when the E-Maps key is enabled: Geo-political features, Airspace, Airways, TFRs, and USA NEXRAD. Additional information can be displayed such as: Navaids, Airports, Intersections, and Altitudes depending on the FMS type. The Temporary Flight Restriction (TFR) graphical and textual information provides a complete picture of the airspace environment that can change on short notice. The additional airspace information is helpful when deviating from a planned flight path to avoid entering hazardous

or restricted airspace. The TFR TEXT REPORT is accessed through the MAP MENU. The individual TFR selections are available to help determine restriction information for each TFR airspace.

▼ CHECKLIST:

1 Push the MENU button on the CCP to show the MAP MENU on the MFD.

2 Rotate the CCP MENU ADV knob to move the cyan focus indicator up or down to select or deselect a display option as follows:

NOTE

The state of the highlighted item is changed by rotating the CCP DATA knob or pushing the CCP PUSH-SELECT button.

- The GEO-POL selection is used to select the display of geopolitical boundaries. Each push of the GEO-POL line select key toggles the next option (ON or OFF).
- The AIRSPACE selection is used to select the display of controlled and restricted airspace. Each push of the AIRSPACE key toggles the next option (ON or OFF).
- The TFR selection is used to select the display of Temporary Flight Restriction airspace. Each push of the key toggles the next option (ON or OFF).
- The AIRWAYS selection is used to select the display of airways. Each push of the AIRWAYS key toggles the next option (HI, LO, or OFF).
- The NAVAIDS selection is used to select the display of NAVAIDS. Each push of the key toggles the next option (ON or OFF).
- The AIRPORTS selection is used to select the display of AIRPORTS. Each push of the key toggles the next option (ON or OFF).

- The INTERSECTIONS selection is used to select the display of navigation INTERSECTIONS. Each push of the key toggles the next option (ON or OFF).
- The ALTITUDES selection is used to select the display of airway ALTITUDES. Each push of the key toggles the next option (ON or OFF).
- The TFR TEXT REPORT LIST is used to select the display of the TFR TEXT REPORT LIST menu.

NOTE

The DATA knob on the CCP can also be used to control map display options. With the cursor on the desired selection, turn the DATA knob to toggle the next selection.

3 Push the FMS source line select key to select the map source (FMS1 or FMS2).

4 If GWX format is selected, the Plan MAP MENU adds a GWX ON OFF item.

5 Turn the DATA knob to move the cursor to the TFR selection to toggle the TFR airspace (ON or OFF).

NOTE

Graphical TFR information is available for display below the 100 NM range on the PPOS and PLAN Maps.

6 Turn the DATA knob to move the cursor to the TFR TEXT REPORT LIST on the MAP MENU to display the TFR TEXT REPORT LIST menu.

7 Turn the DATA knob to move the cursor to a TFR for viewing.

8 Push the PUSH SELECT button on the CCP to display the TFR text report.

9 Push the ESC button on the CCP to return to the TFR TEXT REPORT LIST menu.

CHART SUBSCRIPTION PAGE (AFD-3010E)

RATIONALE:

The Chart Subscription page allows the flight crew or maintenance personnel to enter information to change the chart region coverage of the database.

SUMMARY:

The Chart Subscription page contains a data entry field, a list of enabled regions, and an ADD REGIONS data entry field. Regions are added to the list by entering temporary access codes. Up to seven temporary access codes can be entered. Both the subscription number and access codes are obtained from Jeppesen (refer to page 11-3 for contact information).

PRECONDITIONS:

The databases associated with E-Charts must be loaded into the FSU before the system is functional. Make sure all pertinent information (e.g., subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

RULES:

- The chart subscription number can only be modified on the ground.
- Jeppesen will need the subscription number when temporary access codes are requested.

▼ CHECKLIST:

1 Push the STAT button on the CCP to display the STAT MENU on the MFD.

NOTE

In some installations, pushing the STAT button brings up the last selected status format. With a status format in view, push the MENU button on the CCP to show the STAT MENU.

TECH DETAIL

The STAT MENU is automatically removed from the display after 10 seconds of no activity.

2 Turn the MENU ADV knob on the CCP to position the cursor around the CHART SUBSCRIPTION list item.

3 Push the PUSH SELECT button on the CCP to select the CHART SUBSCRIPTION page.

4 Follow the steps of either the Enter Subscription Number or the Add a Region checklists as appropriate to enter the Jeppesen subscription number or add regions to the chart coverage.

5 To exit the CHART SUBSCRIPTION page, select another display format on the MFD.

NOTE

In some installations, operation of the STAT button removes the current status format from display, returning the display to the last normal format.

ENTER SUBSCRIPTION NUMBER

SUMMARY:

On the Chart Subscription page, the SUBSCRIPTION NUMBER data entry field is used to enter the Jeppesen subscription serial number. This operation is only available when the aircraft is on the ground.

▼ CHECKLIST:

1 Turn the MENU ADV knob on the CCP to position the menu cursor around the subscription number.

2 Push and hold the PUSH SELECT button on the CCP to activate the text entry cursor and to position the cursor around the first character of the entry field.

3 Turn the DATA knob on the CCP to change the character.

4 Turn the MENU ADV knob to move the cursor to the next character field.

5 Repeat steps 3 and 4 as required to enter all the characters of the subscription number.

6 Do either of the steps that follow to terminate the data entry mode:

6.1 Push the PUSH SELECT button on the CCP to finish entering the subscription number and have the system process the information.

NOTE

Entering or changing a subscription number can take up to two minutes to process.

6.2 Push the ESC button to cancel data entry mode and keep the previous value.

NOTE

Operation of the ESC button on the CCP or removal of the menu due to another control selection will abort the data entry without processing the value. When a data entry abort occurs, the subscription serial number is either returned to the previous value or to zeros if no previous value is available.

7 To exit the CHART SUBSCRIPTION page, select another display format on the MFD.

ADD A REGION

RATIONALE:

The ADD REGIONS field on the CHART SUBSCRIPTION page is used to expand the current region coverage.

SUMMARY:

Additional regions are added to the list of regions by entering temporary access codes. When the access code has been validated by the system, the menu cursor automatically moves to the next data entry line and further selection of data entry mode for the previous item is inhibited until the data entry fields are cleared. The data entry fields are cleared when the CHART SUBSCRIPTION page is exited. Clearing the data entry fields does not remove the associated region from the subscription database; it just clears the access codes from the menu.

PRECONDITIONS:

Contact Jeppesen to purchase a temporary access code for a region that is not in the current region coverage. Use this temporary access code until a new disk arrives from Jeppesen. The new disk will contain the expanded coverage and the temporary access code will no longer be needed.

RULES:

If a temporary access code for a region is needed only until the next disk update, as requested by the customer, access to that region is denied after the next disk update. Similarly, the old temporary access code only works with a specific cycle of Jeppesen database.

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the access code.
2	Push the PUSH SELECT button on the CCP to activate the text entry cursor and to position the cursor around the first character of the entry field.
3	Turn the DATA knob on the CCP to change the character.

4 Turn the MENU ADV knob to move the cursor to the next character field.

5 Do either of the steps that follow to terminate the data entry mode:

5.1 Push the PUSH SELECT button on the CCP to finish entering the access code and have the system process the information.

5.2 Push the ESC button to cancel data entry mode and keep the previous value.

6 To exit the CHART SUBSCRIPTION page, select another display format on the MFD.

DATABASE EFFECTIVITY (AFD-3010E)

RATIONALE:

The DATABASE EFFECTIVITY page provides the aircraft operator with a means to assess the currentness of the installed databases.

SUMMARY:

A list of the installed databases shows on the DATABASE EFFECTIVITY page. The list includes the name, begin date, end date, and status (current or not current) for enabled databases. The DATABASE EFFECTIVITY page is also used to navigate between the installed databases and to provide specific information regarding the installed databases. The MFD shows database information from the same side File Server Unit (FSU). In the event of a dual FSU installation, the left MFD shows data from the left FSU and the right MFD shows data from the right FSU.

▼ CHECKLIST:

1 Push the STAT button on the CCP to display the STAT MENU on the MFD.

NOTE

In some installations, operation of the STAT button brings up the last selected status format. With a status format in view, push the MENU button on the CCP to display the STAT MENU.

NOTE

When the STAT MENU is in view, the cursor should be automatically positioned on the DATABASE EFFECTIVITY list item. If for some reason it is not, turn the MENU ADV knob until the cursor is on the DATABASE EFFECTIVITY list item.

TECH DETAIL

The STAT MENU is automatically removed from the display after 10 seconds of no activity.

2 Push the PUSH SELECT button on the CCP to select the DATABASE EFFECTIVITY page.

3 To exit the DATABASE EFFECTIVITY page, select another display format on the MFD.

NOTE

In some installations, pushing the STAT button removes the current status format from display, returning the display to the last normal format.

VIEW DATABASE DETAILS

SUMMARY:

The database details window provides additional information regarding the selected database. Various databases provide different levels of detail information in the detail window. Most provide regional coverage information. Other databases provide additional information such as subscriber name, etc.

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the desired database.
2	Push the PUSH SELECT button on the CCP.
3	To exit the DATABASE EFFECTIVITY page, select another display format on the MFD.

FILE SERVER CONFIGURATION (AFD-3010E)

RATIONALE:

The FILE SERVER CONFIGURATION page shows information on the software applications available to the user and the current status of these options.

SUMMARY:

A list of all applications contained within the FSU shows on the FILE SERVER CONFIGURATION page (FSU CONFIGURATION page). The list includes the priced option type number, part number, priced option description, and status information for each priced option. The FSU CONFIGURATION page is also used to update purchased options.

▼ CHECKLIST:

1. Push the STAT button on the CCP to display the STAT MENU on the MFD.

NOTE

In some installations, operation of the STAT button brings up the last selected status format. With a status format in view, push the MENU button on the CCP to display the STAT MENU.

2. Turn the MENU ADV knob to position the menu cursor around FILE SERVER CONFIGURATION in the STAT MENU.
3. Push the PUSH SELECT button to show the FILE SERVER CONFIGURATION page.
4. Select another display format on the MFD to exit the FILE SERVER CONFIGURATION page.

UPDATE PURCHASED OPTIONS

RULES:

Encrypted Application Keys (EAK) can only be entered while the system is on the ground.

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the subscription number.
2	Push the PUSH SELECT button on the CCP to activate the text entry cursor and to position the cursor around the first character of the entry field.
3	Turn the DATA knob on the CCP to change the character.
4	Turn the MENU ADV knob to move the cursor to the next character field.
5	Repeat steps 3 and 4 as required to enter all the characters of the EAK.
6	Do either of the steps that follow to terminate the data entry mode: • Push the PUSH SELECT button on the CCP to finish entering the EAK number and have the system process the information. • Push the ESC button to cancel data entry mode and keep the previous value.

MDC DIAGNOSTICS (AFD-3010E)

RATIONALE:

The Maintenance Diagnostics Computer (MDC) pages provide access to the MDC fault codes to conduct troubleshooting operations.

SUMMARY:

The MDC pages are used to troubleshoot problems with the installed avionics units. The CURRENT FAULTS page provides current fault status. The AIRCRAFT HISTORY page provides fault history and a summary of the various legs of the flight. The MDC SETUP page provides setup control of some MDC parameters, such as aircraft identification code and the aircraft clock, configuration control, which include the file load function that allows files from a database, (for example user checklists), to be loaded from a disk. The REPORT DOWNLOAD page provides the ability to download MDC report files to a diskette. There is also a separate Flight Control System (FCS) diagnostic that allows troubleshooting of autopilot and yaw damper failures.

▼ CHECKLIST:

1 Apply power to all avionics systems.

TECH DETAIL

Wait 60 seconds for the system to stabilize.

2 Set the aircraft maintenance switch to the ON position.

TECH DETAIL

The maintenance switch is a non-Rockwell Collins installed switch. Refer to the AFM or other aircraft manuals for location of the maintenance switch.

3 Push the STAT button on the CCP to show the STAT MENU on the MFD.

NOTE

In some installations, operation of the STAT button brings up the last selected status format. With a status format in view, push the MENU button on the CCP to display the STAT MENU.

TECH DETAIL

The STAT MENU is automatically removed from the display after 10 seconds of no activity.

4 Turn the MENU ADV knob on the CCP to move the cursor to the MAINTENANCE MAIN MENU list item.

5 Push the PUSH SELECT button on the CCP to select the MAINTENANCE MAIN MENU page.

6 Push the UP or DOWN line select key on the MFD to move the cursor to the desired line. The available options are:

- CURRENT FAULTS
- AIRCRAFT HISTORY
- ATA INDEX
- LRU INDEX OPERATIONS
- MDC SETUP
- CONFIGURATION DATA
- REPORT DOWNLOAD.

7 Push the SELECT line select key on the MFD to select the desired item and display that page on the MFD.

8 To exit the MAINTENANCE MAIN MENU page, select another display format on the MFD.

NOTE

In some installations, pushing the STAT button removes the current status format from display, returning the display to the last normal format.

CHECKLISTS

RATIONALE:

The checklist feature allows user-created checklists to be uploaded into the MDC. The checklists can then be displayed on the MFD for later use.

SUMMARY:

The checklist system provides a display of user selected checklist data above the navigation format. There is a preamble page, which requires flight crew acknowledgement, and up to four checklist menus available. The potential checklist menus are NORMAL, ABNORMAL, EMERGENCY, and USER.

▼ CHECKLIST:

1 To load checklist files, follow the steps of the Load Checklist(s) procedure.

2 To display the checklist format, follow the steps of the Display Checklist(s) procedure.

LOAD CHECKLIST (AFD-3010E)

SUMMARY:

Checklists are loaded via the CPAS-3000 Data Loader or the DBU-5000 Data Base Unit. The NORMAL, ABNORMAL, EMERGENCY, and USER checklists are created by the operator on a personal computer using the CHECKLIST EDITOR INSTRUCTIONS (CPN 523-0778174). Capability to change or define the checklists while on the aircraft is not provided.

▼ CHECKLIST:

1 Apply power to all avionics systems.

TECH DETAIL

Wait 60 seconds for the system to stabilize.

2 Set the aircraft maintenance switch to the ON position.

TECH DETAIL

The maintenance switch is a non-Rockwell Collins installed switch. Refer to the AFM or other aircraft manuals for location of the maintenance switch.

3 Push the STAT button on the CCP to show the STAT MENU on the MFD.

NOTE

In some installations, pushing the STAT button brings up the last selected status format. With a status format in view, push the MENU button on the CCP to display the STAT MENU.

4 Turn the MENU ADV knob on the CCP to move the cursor to the MAINTENANCE MAIN MENU list item.

5 Push the PUSH SELECT button on the CCP to select the MAINTENANCE MAIN MENU page.

6 Push the UP or DOWN line select keys to move the cursor to the MDC SETUP list item.

7 Push the SELECT line select key on the MFD to select the MDC SETUP page.

8 Push the UP or DOWN line select keys on the MFD to move the cursor to the LOAD FILES FROM DISK list item.

9 Push the SELECT line select key on the MFD to select the LOAD FILES FROM DISK page.

10 Push the UP or DOWN line select keys on the MFD to move the cursor to either the ALL CHECKLIST FILES or the USER CHECKLIST FILES ONLY list items.

11 Push the SELECT line select key on the MFD to initiate the load process. Follow the loading files procedure for the database loader being used.

12 When the load is complete, push the RETURN line select key on the MFD to return to the MAINTENANCE MAIN MENU page.

13 To exit the MAINTENANCE MAIN MENU page, select another display format on the MFD.

NOTE

In some installations, pushing the STAT button removes the current status format from display, returning the display to the last normal format.

DISPLAY CHECKLIST (AFD-3010E)

▼ CHECKLIST:

1 Push the UPPER FORMAT line select key on the MFD once to show the upper display FORMAT list.

2 Push the FORMAT line select key as many times as necessary to select CHECKLIST as the format and display the CHECKLIST INDEX page.

NOTE

If no checklists have been started, the message RESET CHECKLIST HISTORY — RESET shows in green as the bottom of the CHECKLIST INDEX page. If one or more checklists have been started or completed, the message RESET CHECKLIST COMPLETE HISTORY shows in white at the bottom of the CHECKLIST INDEX page.

3 Turn the MENU ADV knob on the CCP to move the cursor to the desired checklist menu.

NOTE

The potential checklists that show on the CHECKLIST INDEX page are NORMAL CHECKLIST MENU, ABNORMAL CHECKLIST MENU, EMERGENCY CHECKLIST MENU, and USER CHECKLIST MENU.

4 Push the PUSH SELECT button on the CCP to show the selected checklist menu (NORMAL CHECKLIST MENU, ABNORMAL CHECKLIST MENU, EMERGENCY CHECKLIST MENU, or USER CHECKLIST MENU).

NOTE

When a checklist is first selected, the preamble page shows on the MFD. The flight crew must acknowledge the preamble page by pushing the PUSH SELECT button on the CCP before using the checklist.

NOTE

If the ESC button on the CCP is pushed from the preamble page, the preamble page has not been acknowledged. The CHECKLIST INDEX page comes into view.

5 Follow the steps of Checklist Operation procedure to complete a checklist.

CHECKLIST OPERATION

PRECONDITIONS:

The procedure that follows begins on a CHECKLIST MENU page (NORMAL CHECKLIST MENU, ABNORMAL CHECKLIST MENU, EMERGENCY CHECKLIST MENU, or USER CHECKLIST MENU):

▼ CHECKLIST:

1 Turn the MENU ADV knob on the CCP to position the cursor next to the desired checklist title.

NOTE

If a checklist menu is longer than one page, and the cursor is positioned on the first line of a checklist menu, turning the MENU ADV knob counterclockwise causes the cursor to wrap around to the last line of the last page. Similarly, if the cursor is positioned on the last line of a checklist menu, turning the MENU ADV knob clockwise causes the cursor to wrap to the first line of the checklist menu.

2 Push the PUSH SELECT button on the CCP to display the first page of the selected checklist with the cursor positioned at the first unchecked item.

3 Push the PUSH SELECT button on the CCP to check off the item next to the cursor. The item changes color from white to green to indicate the item has been completed.

NOTE

Typically, the aircraft manufacturer installs a Line Advance button on the control wheel that performs the same check off action.

NOTE

When an item has been checked, the cursor will automatically move to the next unchecked item. To skip an item, turn the MENU ADV knob on the CCP to manually move the cursor to the desired item.

4 With the cursor positioned on the CHECKLIST COMPLETE (or similar) selection, push the PUSH SELECT button on the CCP to exit the checklist.

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IFIS-5000 Display Operation (AFD-5220E)

GRAPHICAL WEATHER (GWX-5000)

RATIONALE:

The Graphical Weather (GWX-5000) function allows the flight crew to view graphical weather images on the MFD. The GWX function also allows the flight crew to overlay the NEXRAD image on the Plan Map.

SUMMARY:

The GWX format provides the ability to show one stored GWX image at a time on the MFD. The GWX images are uplinked via VHF datalink system from the Information Service Provider (Universal Weather). New GWX images are requested by the flight crew via controls on the CDU (refer to the Rockwell Collins Corporate Datalink System CMU-4000/RIU-40X0 operator's guide, CPN 523-0790499, for more information on requesting weather images). A list of saved and available GWX images shows on the MFD when requested by the flight crew. Using controls on the CCP, the flight crew selects the desired GWX image to show on the MFD.

PRECONDITIONS:

To determine which version of Graphical Weather is installed, go to the FILE SERVER CONFIGURATION page (FSU CONFIGURATION page). To access the FSU CONFIGURATION page refer to the FSU configuration page on page 5-19. The Universal Weather installation is designated GWX-5000.

The databases associated with Graphical Weather must be loaded into the FSU before the system is functional. Make sure all pertinent information (subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

▼ CHECKLIST:

1 To view a GWX image, follow either the Display Last GWX Image checklist on page 5-3 or the Select New GWX Image checklist that starts on page 5-3.

DISPLAY LAST GWX IMAGE (AFD-5220E)

▼ CHECKLIST:

1 Push the UPR MENU or LWR MENU button on the CCP to display the Window menu.

2 Turn the MENU ADV knob to position the focus indicator around the FORMAT Selections.

TECH DETAIL

The complete list of possible lower MFD formats is PPOS (Present Position Map), PLAN (Plan Map), GWX, TCAS (TCAS Only), EICAS, and SEC EICAS depending on the installed options.

3 Turn the DATA knob to select the GWX format. The GWX image that shows on the MFD when the GWX format is selected is the last displayed GWX image.

SELECT NEW GWX IMAGE (AFD-5220E)

▼ CHECKLIST:

1 Push the UPR MENU or LWR MENU button on the CCP to display the Window menu.

2 Turn the MENU ADV knob to position the focus indicator around the FORMAT Selections.

3 Turn the DATA knob to select the GWX format. The GWX image that shows on the MFD when the GWX format is selected is the last displayed GWX image.

4 Turn the MENU ADV knob to position the focus indicator around CONTROLS GWX IMAGES.

5	Push the select button on the CCP to display the list of available GWX images.
6	Turn the MENU ADV knob to position the focus indicator around the desired image.
7	Push the select button to display the image.

POST CONDITIONS:

When the image has been selected from the GWX image list, the selected image is in view on the MFD.

GRAPHICAL WEATHER (GWX-3000)

RATIONALE:

The Graphical Weather (GWX-3000) function allows the flight crew to view graphical weather images and textual weather reports on the MFD. The GWX function also allows the flight crew to overlay the NEXRAD image on the Plan Map.

SUMMARY:

The GWX format provides the ability to show GWX images or reports on the MFD. The GWX images/reports are provided by Baron Services via a satellite Information Service Provider (XM Satellite Weather Service). Using controls on the CCP, the flight crew selects the desired GWX images or reports to show on the MFD.

PRECONDITIONS:

To determine which version of graphical weather is installed, go to the FILE SERVER CONFIGURATION page (FSU CONFIGURATION page). To access the FSU CONFIGURATION page refer to File Server Configuration on page 5-19. The XM weather installation is designated GWX-3000.

The databases associated with Graphical Weather must be loaded into the FSU before the system is functional. Make sure all pertinent information (subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information

chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

▼ CHECKLIST:

1 To view a GWX image, follow either the Display Last GWX Image checklist onpage 5-5 or the Select New GWX Image checklist that starts on page 5-6.

DISPLAY LAST GWX IMAGE (AFD-5220E)

▼ CHECKLIST:

1 Push the UPR MENU or LWR MENU button on the CCP to display the window menu.

2 Turn the MENU ADV knob to position the focus indicator around the FORMAT selections.

3 Turn the DATA knob to select the GWX format.

TECH DETAIL

The complete list of possible lower MFD formats are PPOS (Present Position Map), PLAN (Plan Map), GWX, TCAS (TCAS Only), EICAS, and SEC EICAS depending on the installed options. The GWX image that shows on the MFD when the GWX format is selected is the last displayed GWX image.

SELECT NEW GWX IMAGE OR TEXT WEATHER (AFD-5220E)

▼ CHECKLIST:

1. Push the UPR MENU or LWR MENU button on the CCP to display the window menu.
2. Turn the MENU ADV knob to position the focus indicator around the FORMAT selections.
3. Turn the DATA knob to select the GWX format.
4. Turn the MENU ADV knob to position the focus indicator around CONTROLS GWX MENU.
5. Push the select button on the CCP to display the GWX Main Menu.
6. Follow the steps of the appropriate checklist to select the desired image or text for display on the MFD.
   - Select TAF/METAR Report checklist on page 5-7 to display a textual TAF or METAR report.
   - Select SIGMET/AIRMET Report checklist on page 5-8 to display a textual SIGMET or AIRMET report.
   - Select ANIMATED NEXRAD checklist on page 5-9 to display animated NEXRAD images.
   - Select GWX Image Overlay checklist on page 5-10 to display one of the GWX overlays.
7. Push the PUSH SELECT button on the CCP to select the highlighted list menu.

POST CONDITIONS:

When the image/report has been selected from the appropriate menu, the selected image or report is in view on the MFD.

SELECT TAF/METAR REPORT

SUMMARY:

The GRAPHICAL WEATHER menu displays TAF/METAR REPORTS menu selections for the ORIGIN, DESTINATION, ALTERNATE, and OTHER airports. When an airport is selected, a list of TAF and METAR reports available for that airport shows, listed in order of most recent to oldest. Selecting a TAF or METAR displays that report on a submenu page on the MFD.

PRECONDITIONS:

The checklist that follows begins on the GRAPHICAL WEATHER menu page on the MFD:

▼ CHECKLIST:

1. Turn the MENU ADV knob to position the cursor around the airport selection under the TAF/METAR REPORTS menu title for which TAF/METAR reports are desired.

NOTE

The airport IDs (DESTINATION, ALTERNATE) are supplied by the FMS and are based on the active flight plan. The identifier of the OTHER airport shows as dashes to indicate an airport may be entered by the flight crew. Refer to the Search for Airport checklist on page 3-4 for details on how to enter an airport ID into the data field.

2. Push the PUSH SELECT button on the CCP to show the appropriate airport page with the list of METAR reports for that airport.

3. Turn the DATA knob on the CCP to select the TAF reports page with the current TAF for that airport.

SELECT SIGMET/AIRMET REPORT

SUMMARY:

The GRAPHICAL WEATHER menu displays NATIONAL MET REPORT menu selections for SIGMET and AIRMET reports. When a report type is selected, a list of either SIGMET or AIRMET reports shows. SIGMET reports are listed in alphabetical order by identifier. AIRMET reports are listed in the order they are received. Selecting a SIGMET or AIRMET displays that report on a submenu page on the MFD.

PRECONDITIONS:

The checklist that follows begins on the GRAPHICAL WEATHER menu page on the MFD:

▼ CHECKLIST:

1 Turn the MENU ADV knob to position the cursor around either the SIGMET or AIRMET selection under the NATIONAL MET REPORTS menu listing.

2 Push the PUSH SELECT button on the CCP to show the appropriate reports page.

NOTE

If more than one report is available, the current page number and the total number of pages shows at the top on the menu list. The reports are ordered from most recent to oldest.

TECH DETAIL

A maximum of 50 active SIGMET reports and 75 active AIRMET reports can be presented.

3 When more than one SIGMET or AIRMET report is available, turn the DATA knob to view all reports. Each turn of the DATA knob selects the next report page.

SELECT ANIMATED NEXRAD (-105, -106)

▼ CHECKLIST:

1. Push the UPR MENU or LWR MENU button on the CCP to display the window menu.
2. Turn the MENU ADV knob to position the focus indicator around the FORMAT selections.
3. Turn the DATA knob to select the GWX format.
4. Turn the MENU ADV knob to position the focus indicator around CONTROLS GWX MENU.
5. Push the select button on the CCP to display the GWX Main Menu.
6. Turn the MENU ADV knob to position the cursor around the ANIMATED NEXRAD selection.

NOTE

The menu cursor indicator skips over the ANIMATED NEXRAD selection when there are not enough images to animate. The message ACQUIRING IMAGES is in view in the ANIMATED NEXRAD selection box on the GRAPHICAL WEATHER menu when not enough images are not available to animate. The message AVAILABLE is in view in the ANIMATED NEXRAD selection box on the GRAPHICAL WEATHER menu when there are enough images available to animate.

7. Push the SELECT button on the CCP to display ANIMATED NEXRAD.

SELECT GWX IMAGE OVERLAY

PRECONDITIONS:

The checklist that follows begins on the GRAPHICAL WEATHER menu page on the MFD:

▼ CHECKLIST:

1	Turn the MENU ADV knob to position the cursor around the desired overlay selection under the OVERLAYS menu list.
1.1	To view the overview legends, turn the MENU ADV knob to the OVERLAY LEGENDS selection item.
1.2	Push the PUSH SELECT button to display the OVERLAY LEGENDS page on the MFD. The OVERLAY LEGENDS page shows all the symbology used on the overlays to assist the operator with interpreting the information that shows on the overlay.
1.3	To exit the OVERLAY LEGENDS page, push the ESC button on the CCP.
2	With the cursor positioned on the overlay selection, turn the DATA knob on the CCP clockwise to turn the selected overlay ON or turn the DATA knob counter clockwise to turn the selected display OFF.

MAP DISPLAYS (AFD-5220E)

RATIONALE:

The Map Displays allow the flight crew to graphically view the route of flight to help maintain situational awareness.

SUMMARY:

An FMS Present Position (PPOS) Map, FMS Plan (PLAN) Map, and optionally an FMS Three-Dimensional (3D) Map format are available to the flight crew. The FMS Present Position (PPOS) Map is a heading-up present position moving map. The FMS Plan (PLAN) Map is a fixed stationary map oriented to true-north. The optional 3D Map is a combined lateral vertical map with an selectable viewing angle. The map formats graphically depict the active FMS flight plan. The PPOS Map and PLAN Map also show FMS-supplied map background symbology such as navaids, intersections, and airports. The IFIS system adds additional background symbology to the PPOS and PLAN Maps. The available background symbology includes geopolitical data, airways, and airspace. NEXRAD images can be overlaid on the Plan Map format.

PRECONDITIONS:

The databases associated with E-Map symbology must be loaded into the FSU before the system is functional. The GWX database must be loaded before NEXRAD images are added to the map display. Make sure all pertinent information (subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader Operator's Guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

Both map formats require that a flight plan be entered into the FMS.

▼ CHECKLIST:

1	Push the LWR MENU button on the CCP to display the window menu.
2	Turn the MENU ADV knob to position the focus indicator around the FORMAT selections.
3	Turn the DATA knob to select PPOS or PLAN.

TECH DETAIL

The complete list of possible lower MFD formats are, PPOS (Present Position Map), 3D, GWX, TCAS (TCAS only), and SEC EICAS depending on the installed options.

4 Follow the MAP DISPLAY OPTION checklist to turn display options on and off.

5 To exit either the PPOS or PLAN Map, select a different lower display format.

MAP DISPLAY OPTIONS

SUMMARY:

The MAP menu contains controls for the E-Maps and the map source. The MAP menu allows the pilot to turn various map display options, such as geopolitical boundaries or airways, on and off. Line select keys on the MFD are used to control the display options when the MAP menu is in view.

▼ CHECKLIST:

1 Push the LWR MENU button on the CCP to display the window menu.

2 Turn the MENU ADV knob to position the focus indicator around the FORMAT selections.

3 Turn the DATA knob to select PPOS or PLAN.

4 Turn the MENU ADV to position the focus indicator around CONTROLS MAP SYMBOLS.

5 Push the select button on the CCP to display map symbols menu.

6 Turn the MENU ADV knob to position the focus indicator around the map feature desired.

7 Turn the DATA knob on the CCP clockwise to turn selected map feature ON or turn the DATA knob counter clockwise to turn the map feature OFF.

CHART SUBSCRIPTION PAGE (AFD-5220E)

RATIONALE:

The Chart Subscription page allows the flight crew or maintenance personnel to enter information to change the chart region coverage of the database.

SUMMARY:

The Chart Subscription page contains a data entry field, a list of enabled regions, and an ADD REGIONS data entry field. Regions are added to the list by entering temporary access codes. Up to seven temporary access codes can be entered. Both the subscription number and access codes are obtained from Jeppesen (refer to page 11-3 for contact information).

PRECONDITIONS:

The databases associated with E-Charts must be loaded into the FSU before the system is functional. Make sure all pertinent information (subscription numbers, access codes, etc.) is available before attempting to install databases. Refer to the Support Information chapter of this guide for information on how to contact Jeppesen and Rockwell Collins Customer Support. Refer to the CPAS-3000 Data Loader operator's guide (CPN 523-0790386) or the DBU-5000 Data Base Unit Operator's Guide (CPN 523-0808703) for information on how to load a database.

RULES:

- The chart subscription number can only be modified on the ground.
- Jeppesen will need the subscription number when temporary access codes are requested.

▼ CHECKLIST:

1. Push the STAT button on the CCP to display the last selected status format on the MFD.
2. If another status format is desired for display, push the UPR or LWR MENU button on the CCP to show the STAT MENU.

TECH DETAIL

The STAT MENU is automatically removed from the display after 10 seconds of no activity.

3. Turn the DATA knob on the CCP to select the CHART SUBSCRIPTION format.
4. Follow the steps of either the Enter Subscription Number or the Add a Region checklists as appropriate to enter the Jeppeson subscription number or add regions to the chart coverage.
5. To exit the CHART SUBSCRIPTION status format, select another display format on the CCP or push the STAT button.

ENTER SUBSCRIPTION NUMBER

SUMMARY:

On the Chart Subscription page, the SUBSCRIPTION NUMBER data entry field is used to enter the Jeppesen subscription serial number. This operation is only available when the aircraft is on the ground.

▼ CHECKLIST:

1. Turn the MENU ADV knob on the CCP to position the menu cursor around the subscription number.

2 Push and hold the PUSH SELECT button on the CCP to activate the text entry cursor and to position the cursor around the first character of the entry field.

3 Turn the DATA knob on the CCP to change the character.

4 Turn the MENU ADV knob to move the cursor to the next character field.

5 Repeat steps 3 and 4 as required to enter all the characters of the subscription number.

6 Do either of the steps that follow to terminate the data entry mode:

6.1 Push the PUSH SELECT button on the CCP to finish entering the subscription number and have the system process the information.

NOTE

Entering or changing a subscription number can take up to two minutes to process.

6.2 Push the ESC button to cancel data entry mode and keep the previous value.

NOTE

Operation of the ESC button on the CCP or removal of the menu due to another control selection will abort the data entry without processing the value. When a data entry abort occurs, the subscription serial number is either returned to the previous value or to zeros if no previous value is available.

7 To exit the CHART SUBSCRIPTION page, select another display format on the MFD.

ADD A REGION

RATIONALE:

The ADD REGIONS field on the CHART SUBSCRIPTION page is used to expand the current region coverage.

SUMMARY:

Additional regions are added to the list of regions by entering temporary access codes. When the access code has been validated by the system, the menu cursor automatically moves to the next data entry line and further selection of data entry mode for the previous item is inhibited until the data entry fields are cleared. The data entry fields are cleared when the CHART SUBSCRIPTION page is exited. Clearing the data entry fields does not remove the associated region from the subscription database; it just clears the access codes from the menu.

PRECONDITIONS:

Contact Jeppesen to purchase a temporary access code for a region that is not in the current region coverage. Use this temporary access code until a new disk arrives from Jeppesen. The new disk will contain the expanded coverage and the temporary access code will no longer be needed.

RULES:

If a temporary access code for a region is needed only until the next disk update, as requested by the customer, access to that region is denied after the next disk update. Similarly, the old temporary access code only works with a specific cycle of Jeppesen database.

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the access code.
2	Push the PUSH SELECT button on the CCP to activate the text entry cursor and to position the cursor around the first character of the entry field.
3	Turn the DATA knob on the CCP to change the character.

4 Turn the MENU ADV knob to move the cursor to the next character field.

5 Do either of the steps that follow to terminate the data entry mode:

5.1 Push the PUSH SELECT button on the CCP to finish entering the access code and have the system process the information.

5.2 Push the ESC button to cancel data entry mode and keep the previous value.

6 To exit the CHART SUBSCRIPTION page, select another display format on the MFD.

DATABASE EFFECTIVITY (AFD-5220E)

RATIONALE:

The DATABASE EFFECTIVITY page provides the aircraft operator with a means to assess the currentness of the installed databases.

SUMMARY:

A list of the installed databases shows on the DATABASE EFFECTIVITY page. The list includes the name, begin date, end date, and status (current or not current) for enabled databases. The DATABASE EFFECTIVITY page is also used to navigate between the installed databases and to provide specific information regarding the installed databases. The MFD shows database information from the same side File Server Unit (FSU). In the event of a dual FSU installation, the left MFD shows data from the left FSU and the right MFD shows data from the right FSU.

▼ CHECKLIST:

1 Push the STAT button on the CCP to display the last selected status format on the MFD.

2 If another status format is desired for display, push the UPR or LWR MENU button on the CCP to show the STAT MENU.

TECH DETAIL

The STAT MENU is automatically removed from the display after 10 seconds of no activity.

3 Turn the DATA knob on the CCP to select the DATABASE EFFECTIVITY status format.

NOTE

After the STAT MENU is out of view, the cursor should be automatically positioned on the DATABASE EFFECTIVITY list item. If for some reason it is not, turn the MENU ADV knob until the cursor is on the DATABASE EFFECTIVITY list item.

4 To exit the DATABASE EFFECTIVITY format, select another display format on the CCP or push the STAT button.

VIEW DATABASE DETAILS

SUMMARY:

The database details window provides additional information regarding the selected database. Various databases provide different levels of detail information in the detail window. Most provide regional coverage information. Other databases provide additional information such as subscriber name, etc.

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the desired database.
2	Push the PUSH SELECT button on the CCP.
3	To exit the DATABASE EFFECTIVITY page, select another display format on the MFD.

FILE SERVER CONFIGURATION (AFD-5220E)

RATIONALE:

The FILE SERVER CONFIGURATION page shows information on the software applications available to the user and the current status of these options.

SUMMARY:

A list of all applications contained within the FSU shows on the FILE SERVER CONFIGURATION page (FSU CONFIGURATION page). The list includes the priced option type number, part number, priced option description, and status information for each priced option. The FSU CONFIGURATION page is also used to update purchased options.

▼ CHECKLIST:

1	Push the STAT button on the CCP to display the last selected status format on the MFD.
2	If another status format is desired for display, push the UPR or LWR MENU button on the CCP to show the STAT MENU.
3	Turn the DATA knob to select the FILE SERVER CONFIGURATION status format.

4	Select another display format on the CCP to exit the FILE SERVER CONFIGURATION status format or push the STAT button.

UPDATE PURCHASED OPTIONS

RULES:

Encrypted Application Keys (EAK) can only be entered while the system is on the ground.

▼ CHECKLIST:

1	Turn the MENU ADV knob on the CCP to position the menu cursor around the subscription number.
2	Push the PUSH SELECT button on the CCP to activate the text entry cursor and to position the cursor around the first character of the entry field.
3	Turn the DATA knob on the CCP to change the character.
4	Turn the MENU ADV knob to move the cursor to the next character field.
5	Repeat steps 3 and 4 as required to enter all the characters of the EAK.
6	Do either of the steps that follow to terminate the data entry mode: • Push the PUSH SELECT button on the CCP to finish entering the EAK number and have the system process the information. • Push the ESC button to cancel data entry mode and keep the previous value.

MDC DIAGNOSTICS (AFD-5220E)

RATIONALE:

The Maintenance Diagnostics Computer (MDC) pages provide access to the MDC fault codes to conduct troubleshooting operations.

SUMMARY:

The MDC pages are used to troubleshoot problems with the installed avionics units. The CURRENT FAULTS page provides current fault status. The AIRCRAFT HISTORY page provides fault history and a summary of the various legs of the flight. The MDC SETUP page provides setup control of some MDC parameters, such as aircraft identification code and the aircraft clock, configuration control, which include the file load function that allows files from a database, (for example user checklists), to be loaded from a disk. The REPORT DOWNLOAD page provides the ability to download MDC report files to a diskette. There is also a separate Flight Control System (FCS) diagnostic that allows troubleshooting of autopilot and yaw damper failures.

▼ CHECKLIST:

1 Apply power to all avionics systems.

TECH DETAIL

Wait 60 seconds for the system to stabilize.

2 Push the STAT button on the CCP to display the last selected status format on the MFD.

3 If another status format is desired for display, push the UPR or LWR MENU button on the CCP to show the STAT MENU.

TECH DETAIL

The STAT MENU is automatically removed from the display after 10 seconds of no activity.

4 Turn the DATA knob on the CCP to select the MAINTENANCE MAIN MENU list item.

5 Push the cursor on the CCP UP or DOWN to move the cursor to the desired maintenance function. The available options are:

- CURRENT FAULTS
- AIRCRAFT HISTORY
- ATA INDEX
- LRU INDEX OPERATIONS
- MDC SETUP
- CONFIGURATION DATA
- REPORT DOWNLOAD.

6 Push the SELECT button on the CCP to select the desired item and display that page on the MFD.

7 To exit the MAINTENANCE MAIN MENU page, select another display format on the CCP or push the STAT button.

CHECKLISTS

RATIONALE:

The checklist feature allows user-created checklists to be uploaded into the MDC. The checklists can then be displayed on the MFD for later use.

SUMMARY:

The checklist system provides a display of user selected checklist data above the navigation format. There is a preamble page, which requires flight crew acknowledgement, and up to four checklist menus available. The potential checklist menus are NORMAL, ABNORMAL, EMERGENCY, and USER.

▼ CHECKLIST:

1 To load checklist files, follow the steps of the Load Checklist(s) procedure.

2 To display the checklist format, follow the steps of the Display Checklist(s) procedure.

LOAD CHECKLIST (AFD-5220E)

SUMMARY:

Checklists are loaded via the CPAS-3000 Data Loader or the DBU-5000 Data Base Unit. The NORMAL, ABNORMAL, EMERGENCY, and USER checklists are created by the operator on a personal computer using the CHECKLIST EDITOR INSTRUCTIONS (CPN 523-0778174). Capability to change or define the checklists while on the aircraft is not provided.

▼ CHECKLIST:

1 Apply power to all avionics systems.

TECH DETAIL

Wait 60 seconds for the system to stabilize.

2 Push the STAT button on the CCP to display the last selected status format on the MFD.

3 If another status format is desired for display, push the UPR or LWR MENU button on the CCP to show the STAT MENU.

TECH DETAIL

The STAT MENU is automatically removed from the display after 10 seconds of no activity.

4 Turn the DATA knob on the CCP to select the MAINTENANCE MAIN MENU list item.

5 Push the joystick on the CCP UP or DOWN to move the cursor to the MDC SETUP maintenance function.

6	Push the SELECT button on the CCP to select the MDC SETUP page.
7	Push the cursor on the CCP UP or DOWN to move the focus indicator to the LOAD FILES FROM DISK list item.
8	Push the SELECT button on the CCP to select the LOAD FILES FROM DISK page.
9	Push the cursor on the CCP UP or DOWN to move the focus indicator to either the ALL CHECKLIST FILES or the USER CHECKLIST FILES ONLY list items.
10	Push the SELECT button on the CCP to initiate the load process. Follow the loading files procedure for the database loader being used.
11	When the load is complete, push the ORIENT button on the CCP to return to the MAINTENANCE MAIN MENU page.
12	To exit the MAINTENANCE MAIN MENU page, select another display format on the CCP or push the STAT button.

DISPLAY CHECKLIST (AFD-5220E)

▼ CHECKLIST:

1	Push the UPR MENU button on the CCP to show the upper display FORMAT list.

2 Turn the DATA knob counter clockwise to select up the format list or clockwise to select down the format list as necessary to select CHECKLIST as the format and display the CHECKLIST INDEX page.

NOTE

If no checklists have been started, the message RESET CHECKLIST HISTORY – RESET shows in green as the bottom of the CHECKLIST INDEX page. If one or more checklists have been started or completed, the message RESET CHECKLIST COMPLETE HISTORY shows in white at the bottom of the CHECKLIST INDEX page.

3 Turn the MENU ADV knob on the CCP to move the cursor to the desired checklist menu.

NOTE

The potential checklists that show on the CHECKLIST INDEX page are NORMAL CHECKLIST MENU, ABNORMAL CHECKLIST MENU, EMERGENCY CHECKLIST MENU, and USER CHECKLIST MENU.

4 Push the PUSH SELECT button on the CCP to show the selected checklist menu (NORMAL CHECKLIST MENU, ABNORMAL CHECKLIST MENU, EMERGENCY CHECKLIST MENU, or USER CHECKLIST MENU).

NOTE

When a checklist is first selected, the preamble page shows on the MFD. The flight crew must acknowledge the preamble page by pushing the PUSH SELECT button on the CCP before using the checklist.

NOTE

If the ESC button on the CCP is pushed from the preamble page, the preamble page has not been acknowledged. The CHECKLIST INDEX page comes into view.

5 Follow the steps of Checklist Operation procedure to complete a checklist.

CHECKLIST OPERATION

PRECONDITIONS:

The procedure that follows begins on a CHECKLIST MENU page (NORMAL CHECKLIST MENU, ABNORMAL CHECKLIST MENU, EMERGENCY CHECKLIST MENU, or USER CHECKLIST MENU):

▼ CHECKLIST:

1 Turn the MENU ADV knob on the CCP to position the cursor next to the desired checklist title.

NOTE

If a checklist menu is longer than one page, and the cursor is positioned on the first line of a checklist menu, turning the MENU ADV knob counterclockwise causes the cursor to wrap around to the last line of the last page. Similarly, if the cursor is positioned on the last line of a checklist menu, turning the MENU ADV knob clockwise causes the cursor to wrap to the first line of the checklist menu.

2 Push the PUSH SELECT button on the CCP to display the first page of the selected checklist with the cursor positioned at the first unchecked item.

3 Push the PUSH SELECT button on the CCP to check off the item next to the cursor. The item changes color from white to green to indicate the item has been completed.

NOTE

Typically, the aircraft manufacturer installs a Line Advance button on the control wheel that performs the same check off action.

NOTE

When an item has been checked, the cursor will automatically move to the next unchecked item. To skip an item, turn the MENU ADV knob on the CCP to manually move the cursor to the desired item.

4 With the cursor positioned on the CHECKLIST COMPLETE (or similar) selection, push the PUSH SELECT button on the CCP to exit the checklist.

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IFIS-5000 Display Operation (AFD-3320)

GWX-3000, GWX-3001, AND GWX-5000

RATIONALE:

The AFD-3320 is similar in size to the AFD-3010E, but operates similar to the AFD-5220E by use of CCP inputs. The AFD-3320 does not have line select keys on its frame. The AFD-3320 contains the -105, -106, and -108 software features displayed in the AFD-3010E sections on this operator guide. Refer to the AFD-5220E operation sections for general AFD-3320 operation.

SUMMARY:

The AFD-3320 is similar in size to the AFD-3010E, but operates similar to the AFD-5220E by use of CCP inputs. The AFD-3320 does not have line select keys on its frame. The AFD-3320 contains the -105, -106, and -108 software features displayed in the AFD-3010E sections on this operator guide. Refer to the AFD-5220E operation sections for general AFD-3320 operation.

▼ CHECKLIST:

1	The AFD-3320 is similar in size to the AFD-3010E, but operates similar to the AFD-5220E by use of CCP inputs. The AFD-3320 does not have line select keys on its frame. The AFD-3320 contains the -105, -106, and -108 software features displayed in the AFD-3010E sections on this operator guide. Refer to the AFD-5220E operation sections for general AFD-3320 operation.

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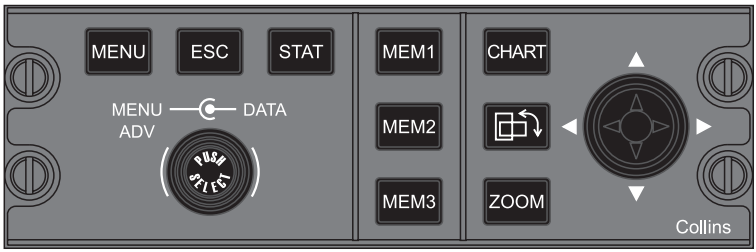
CONTROLS AND INDICATORS

CURSOR CONTROL PANEL (CCP-3000)



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The Cursor Control Panel (CCP-3000) provides controls for the IFIS formats. Controls include dedicated E-Chart controls, a button to rotate the chart, a joystick to pan the E-Chart, a button to zoom in and out of chart, quick access keys for MFD display formats, and MFD PPOS and Plan MAP MENU controls.

▼ CALLOUTS:

MENU ADV Menu Advance Knob	Turn the MENU ADV knob to position the menu cursor around the desired shortcut, menu item, or alphanumeric entry field. Clockwise rotation of the knob moves the cursor down the page. Counterclockwise rotation moves the cursor up the page. The MENU ADV knob is also used for checklist control.
PUSH SELECT Push Select Button	Push the PUSH SELECT button to select the item highlighted by the menu cursor. The PUSH SELECT button is also used for checklist control.

DATA
Data Knob

When data entry mode is active, rotate the DATA knob on the CCP clockwise to move forward through the characters and counterclockwise to move backward through the characters. With a chart in view, rotate the DATA knob on the CCP to cycle through the list of linked charts associated with the airport identified by the displayed chart.

MENU
Menu Button

The MENU button opens and closes menus on the MFD, the content of which depends on the format. Refer to the IFIS-5000 MENU NAVIGATION chapter of this guide for a diagram of the IFIS-5000 menu architecture.

ESC
Escape Button

Each push of the ESC button backs up one level until the top level is reached on the display.

STAT
Status Button

The STAT button is used to show a menu of lesser-used MFD formats. In some installations, pushing the STAT button brings up the last selected status format. With a status format in view, push the MENU button on the CCP to display the STAT MENU.

NOTE

The STAT button may be labeled DATABASE, depending on the installation. Operation is as described above regardless of the button label.

The STAT MENU can include the formats that follow. The formats below have sections in this guide. The Maintenance Main Menu and FCS Diagnostics formats are found in MDC Diagnostics section.

- Database Effectivity
- Chart Subscription
- FCS Diagnostics
- Maintenance Main Menu
- File Server Configuration.

MEM1
MEM2
MEM3
Memory Buttons

Three quick-access controls located on the CCP are used to store, then recall display format configurations for the same side MFD. Only combinations of split-display formats, such as Checklist and PPOS Map, are stored. The full-display formats (e.g., E-Charts and FMS Text Only) are accessed with dedicated controls.

Each of the three quick access buttons (MEM1, MEM2, and MEM3) on the CCP allows the system to store the current values/states of MFD display parameters. To store the current MFD values/states, push one of the three quick access buttons for more than three seconds. The upper format, lower format, TERR/Radar (RDR)/Lightning (LX) overlay state, and TFC overlay state are stored. The messages that follow are available for display on the MFD when a store is requested:

- STORE FAULT shows when a fault is detected that prevents the system from storing the current MFD values/states.

- STORE shows when a quick access button is pushed for more than three seconds. This message indicates to the flight crew that the button should be released to complete the STORE action.
- STORE COMPLETE shows when a quick access button is released and the current MFD display parameters have successfully been stored.

A recall is requested when one of the quick access buttons on the CCP is pushed and released (in less than three seconds). When a set of formats are recalled using the quick access buttons, any full formats that are currently in view are replaced with the appropriate split view (upper and lower formats). The messages that follow are available for display on the MFD when a recall is requested:

- RECALL COMPLETE shows when the recall action is complete.
- RECALL FAULT shows when a recall cannot be achieved due to a fault.

CHART
Chart Button

Push the CHART button on the CCP to show the last E-Chart chart in view. Refer to the figure on page 8-3 for details.

Orientation Button

When a new chart is selected, the orientation is set to the default orientation determined by the Jeppesen database. The first push of the orientation button (located below the CHART button on the CCP) rotates the chart 90 degrees. The second push rotates the chart back to its original orientation.

ZOOM
Zoom Button

When a new chart is selected, the chart is initially scaled such that the width of the chart fills the display. When the chart is rotated to landscape, the chart is scaled again to allow the height of the chart to fill the display window. Operate the joystick to move the pan/zoom window to the area of the chart to be viewed with the zoom. The first push of the ZOOM button increases the size of the previously selected area inside the pan/zoom window. The second push of the ZOOM button returns the chart to full scale.

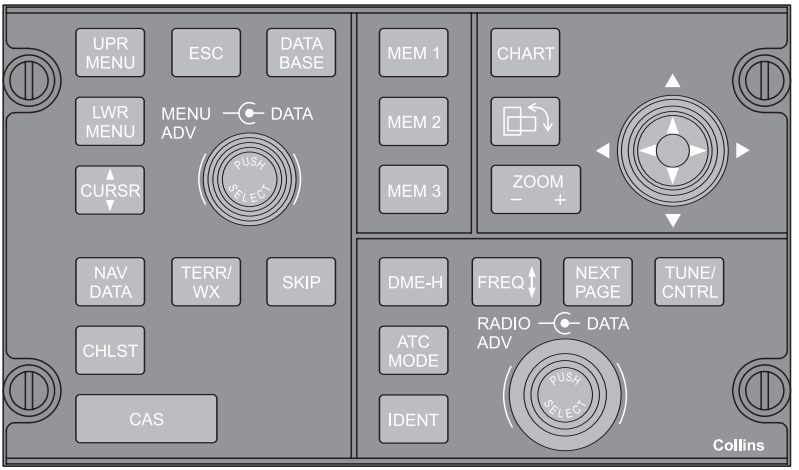
NOTE

The last viewed orientation, zoom and pan positions are recalled and in view the next time each chart is selected for display.

Joystick

With full scaling on, operate the joystick to move the pan/zoom window to the area of the chart to be enlarged. When zoomed in, operate the joystick to bring the area into view.

CURSOR CONTROL PANEL (CCP-3310)



TPI2433_01

The CCP-3310 (Cursor Control Panel) provides MFD display control on the AFD-3320 (Adaptive Flight Display) for the IFIS-5000 formats. The CCP provides dedicated controls for the IFIS electronic charts, enhanced maps, and graphical weather features. The CCP provides control of all Crew Alerting System displays, including those displayed on the PFD when the PFD is in the compressed format.

NOTE

Only the controls that apply to the IFIS-5000 system are described in this section.

▼ CALLOUTS:

MENU ADV Menu Advance Knob	Turn the MENU ADV knob to position the menu cursor around the desired shortcut, menu item, or alphanumeric entry field. Clockwise rotation of the knob moves the cursor down the page. Counterclockwise rotation moves the cursor up the page. The MENU ADV knob is also used for checklist control.
PUSH SELECT Push Select Button	Push the PUSH SELECT button to select the item highlighted by the menu cursor. The PUSH SELECT button is also used for checklist control.
DATA Data Knob	When data entry mode is active, rotate the DATA knob on the CCP clockwise to move forward through the characters and counterclockwise to move backward through the characters. With a chart in view, turn the DATA knob on the CCP to cycle through the list of linked charts associated with the airport identified by the displayed chart.
UPR MENU Upper Menu Button	The UPR MENU button opens and closes various control menus when navigating the upper half of the MFD window. SELECTION INACTIVE is displayed if there is no menu on the currently displayed page and the UPR MENU button is pushed.
LWR MENU Lower Menu Button	The LWR MENU button opens and closes various control menu when navigating the lower half of the MFD window. SELECTION INACTIVE is displayed if there is no menu on the currently displayed page and the LWR MENU button is pushed.

NOTE

On the Chart and Status format, the UPR MENU and LWR MENU push buttons are treated as one key.

CURSR
Cursor Button

The CURSR button toggles the menu focus indication between the upper and lower window.

ESC
Escape Button

Each push of the ESC button backs up one level until the top level is reached on the display or exits a displayed menu.

DATA BASE
Data Base Button

The DATA BASE button selects and deselects the DATA BASE overlay window on the MFD. The DATA BASE window provides access to the following:

- MDC MAINTENANCE
- FCS DIAGNOSTICS
- SUBSCRIPTIONS
- DATABASE EFFECTIVITY
- FILE SERVER CONFIG.

NOTE

The contents of the list can change based upon what hardware and software options have been installed on the aircraft. Each of the formats listed on the Data Base overlay window provide a means to navigate to and use that format. When the Status Menu is displayed, turn the CCP MENU ADV knob to move the focus indicator and press the PUSH SELECT button to select a full format presentation for display. Each time the STAT MENU is displayed, the focus indicator defaults to the top of the available format list.

MEM1
MEM2
MEM3
Memory Buttons

Three quick-access buttons are used to store, then recall display format configurations for the MFD. Only combinations of split-display formats, such as Checklist and PPOS Map, are stored. To store the current MFD values/states, push one of the three quick access buttons for more than three seconds. The upper format, lower format, TERR/Radar (RDR)/Lightning (LX) overlay state, and TFC overlay state are stored. The messages that follow are available for display on the MFD when a store is requested:

- STORE FAULT shows when a fault is detected that prevents the system from storing the current MFD values/states.
- STORE shows when a quick access button is pushed for more than three seconds. This message indicates to the flight crew that the button should be released to complete the STORE action.
- STORE COMPLETE shows when a quick access button is released and the current MFD display parameters have successfully been stored.

A recall is requested when one of the quick access buttons on the CCP is pushed and released (in less than three seconds). When a set of formats are recalled using the quick access buttons, any full formats that are currently in view are replaced with the appropriate split view (upper and lower formats). The messages that follow are available for display on the MFD when a recall is requested:

- RECALL COMPLETE shows when the recall action is complete.
- RECALL FAULT shows when a recall cannot be achieved due to a fault.

CHART
Chart Button

Push the CHART button on the CCP to show the last E-Chart in view.

Orientation Button

When a new chart is selected, the orientation is set to the default orientation determined by the Jeppeson database. The first push of the orientation button, located below the CHART button on the CCP, rotates the chart 90 degrees. The second push rotates the chart back to its original orientation.

ZOOM (- / +)
Zoom Button

Operate the joystick to move the pan/zoom window to the area of the chart to be viewed with the zoom. The ZOOM (+) button increases magnification and the ZOOM (–) button decreases magnification.

NOTE

The last viewed orientation, zoom and pan positions are recalled and displayed the next time each chart is selected for display.

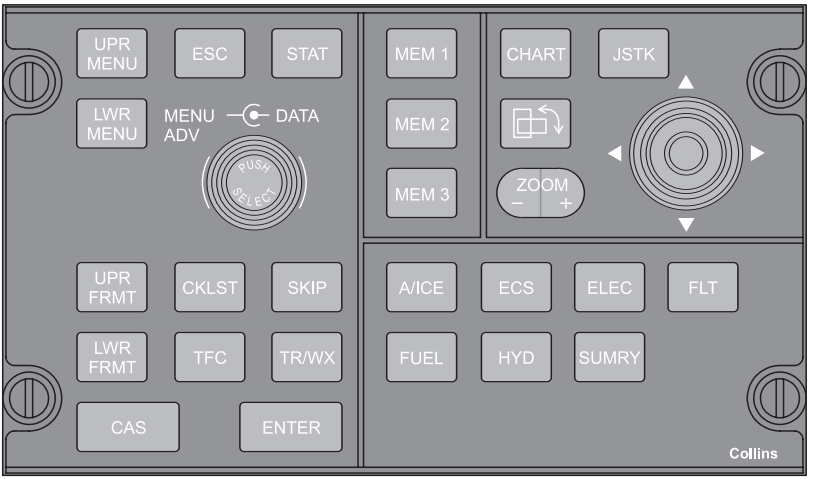
Joystick

The joystick provides control for the checklist, 3D Map, PPOS Map, E-Charts, XM Grahpical Weather, and Maintenance functions.

- With the 3D Map showing the joystick manually controls the lateral viewing angle as well as the vertical viewing mode.

- With a checklist page showing, move the joystick up and down to check off a checklist item or move the cursor on a menu. Move the joystick right and left to move to a next and previous checklist.
- With the FMS PPOS Map showing, move the joystick to position the cursor at a desired point on the map. When the ENTER button is pushed, the geographic coordinates show in the CDU scratchpad.
- When Maintenance mode is active on the MFD, the joystick is used for Maintenance page control.

CURSOR CONTROL PANEL (CCP-50XX)



TPH9102_01

The CCP-50XX (Cursor Control Panel) provides MFD display control on the AFD-5220E (Adaptive Flight Display) for the IFIS-5000 formats. The CCP provides dedicated controls for the IFIS electronic charts, enhanced maps, and graphical weather features. The CCP provides control of all Crew Alerting System displays, including those displayed on the PFD when the PFD is in the compressed format.

NOTE

Only the controls that apply to the IFIS-5000 system are described in this section.

▼ CALLOUTS:

MENU ADV Menu Advance Knob	Turn the MENU ADV knob to position the menu cursor around the desired shortcut, menu item, or alphanumeric entry field. Clockwise rotation of the knob moves the cursor down the page. Counterclockwise rotation moves the cursor up the page. The MENU ADV knob is also used for checklist control.
PUSH SELECT Push Select Button	Push the PUSH SELECT button to select the item highlighted by the menu cursor. The PUSH SELECT button is also used for checklist control.
DATA Data Knob	When data entry mode is active, rotate the DATA knob on the CCP clockwise to move forward through the characters and counterclockwise to move backward through the characters. With a chart in view, turn the DATA knob on the CCP to cycle through the list of linked charts associated with the airport identified by the displayed chart.
UPR MENU Upper Menu Button	The UPR MENU button opens and closes various control menus when navigating the upper half of the MFD window. SELECTION INACTIVE is displayed if there is no menu on the currently displayed page and the UPR MENU button is pushed.
LWR MENU Lower Menu Button	The LWR MENU button opens and closes various control menu when navigating the lower half of the MFD window. SELECTION INACTIVE is displayed if there is no menu on the currently displayed page and the LWR MENU button is pushed.

NOTE

On the Chart and Status format, the UPR MENU and LWR MENU push buttons are treated as one key.

ESC
Escape Button

Each push of the ESC button backs up one level until the top level is reached on the display or exits a displayed menu.

STAT
Status Button

The STAT button is used to show a menu of certain MFD formats. The Status Menu is displayed when a Status Format Window is selected on the MFD and the CCP UPR or LWR MENU button is pushed. The STAT MENU can include the formats that follow:

- Database Effectivity
- Chart Subscription
- File Server Configuration.

NOTE

The contents of the list can change based upon what hardware and software options have been installed on the aircraft. Each of the formats listed on the Status Menu provide a means to navigate to and use that format. When the Status Menu is displayed, turn the CCP MENU ADV knob to move the focus indicator and press the PUSH SELECT button to select a full format presentation for display. Each time the STAT MENU is displayed, the focus indicator defaults to the top of the available format list.

MEM1
MEM2
MEM3
Memory Buttons

Three quick-access buttons are used to store, then recall display format configurations for the MFD. Only combinations of split-display formats, such as Checklist and PPOS Map, are stored. To store the current MFD values/states, push one of the three quick access buttons for more than three seconds. The upper format, lower format, TERR/Radar (RDR)/Lightning (LX) overlay state, and TFC overlay state are stored. The messages that follow are available for display on the MFD when a store is requested:

- STORE FAULT shows when a fault is detected that prevents the system from storing the current MFD values/states.
- STORE shows when a quick access button is pushed for more than three seconds. This message indicates to the flight crew that the button should be released to complete the STORE action.
- STORE COMPLETE shows when a quick access button is released and the current MFD display parameters have successfully been stored.

A recall is requested when one of the quick access buttons on the CCP is pushed and released (in less than three seconds). When a set of formats are recalled using the quick access buttons, any full formats that are currently in view are replaced with the appropriate split view (upper and lower formats). The messages that follow are available for display on the MFD when a recall is requested:

- RECALL COMPLETE shows when the recall action is complete.
- RECALL FAULT shows when a recall cannot be achieved due to a fault.

CHART
Chart Button

Push the CHART button on the CCP to show the last E-Chart in view.

Orientation Button

When a new chart is selected, the orientation is set to the default orientation determined by the Jeppeson database. The first push of the orientation button, located below the CHART button on the CCP, rotates the chart 90 degrees. The second push rotates the chart back to its original orientation.

ZOOM (- / +)
Zoom Button

Operate the joystick to move the pan/zoom window to the area of the chart to be viewed with the zoom. The ZOOM (+) button increases magnification and the ZOOM (–) button decreases magnification.

NOTE

The last viewed orientation, zoom and pan positions are recalled and displayed the next time each chart is selected for display.

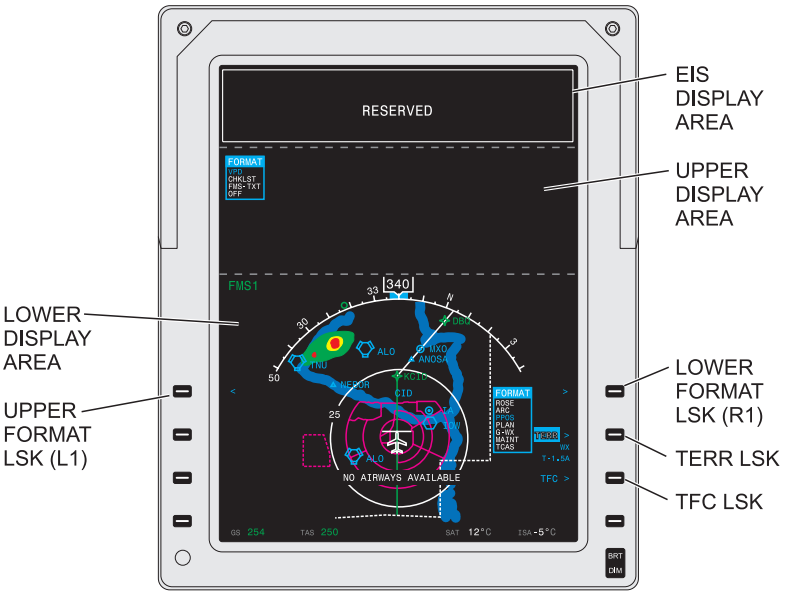
Joystick

The joystick provides control for the checklist, 3D Map, PPOS Map, E-Charts, XM Grahpical Weather, and Maintenance functions.

- With the 3D Map showing the joystick manually controls the lateral viewing angle as well as the vertical viewing mode.

- With a checklist page showing, move the joystick up and down to check off a checklist item or move the cursor on a menu. Move the joystick right and left to move to a next and previous checklist.
- With the FMS PPOS Map showing, move the joystick to position the cursor at a desired point on the map. When the ENTER button is pushed, the geographic coordinates show in the CDU scratchpad.
- When Maintenance mode is active on the MFD, the joystick is used for Maintenance page control.

MULTIFUNCTION DISPLAY (MFD) (AFD-3010E)



The MFD is the display interface for the IFIS-5000 system. The MFD consists of two major display areas: the Engine Indicating System (EIS) area at the top of the display and the multifunction window below it. The presence of the EIS display is determined by the aircraft manufacturer. When the EIS display is not present, the multifunction window includes the EIS display area as well (e.g., the entire MFD is used for display). The multifunction window is divided into two sub-areas: the upper display area and the lower display area. The upper display area is used for the Checklist (CHKLST) function and an FMS text-only format (FMS - TEXT). The lower display area is used for the navigation displays and Graphical Weather (GWX) format. The line select keys on the MFD are used in combination with controls on the CCP to control the upper and lower display areas.

▼ CALLOUTS:

L1 Upper Format Line Select Key	The L1 line select key on the MFD is a dedicated line select key that is used to select the format for the upper display area. The initial push of the L1 key shows the upper FORMAT list with the currently selected format highlighted on the list of available items. Each subsequent push of the line select key toggles the next option on. Upper display format options vary depending on the installed options and aircraft switch settings.
R1 Lower Format Line Select Key	The R1 line select key on the MFD is a dedicated line select key that is used to select the format for the lower display area. The initial push of the R1 key shows the lower FORMAT list with the currently selected format highlighted on the list of available items. Each subsequent push of the line select key toggles the next option on. Lower display format options vary depending on the installed options.
TFC Traffic Display Line Select Key	The TFC overlay line select key is used to select the TRAFFIC display during normal and traffic alert conditions. Refer to the Aircraft Avionics System operator's guide for information on the TCAS operation and displays.
TERR Terrain Display Line Select Key	The TERR overlay line select key is used to select a TERRAIN display during a terrain alert. Refer to the Aircraft Avionics System operator's guide for information on the Terrain Awareness and Warning System (TAWS) (or Ground Proximity Warning System) operation and displays.

Line Select Keys

Non-dedicated line select keys are used to control the display formats and options on the upper and lower display areas. The function of each line select key is determined by the current selected upper and/or lower format. Refer to the specific format explanation in this guide for information on the function of the line select keys for that particular format.

MULTIFUNCTION DISPLAY (MFD) (AFD-3320)

TPI2358_01

The MFD is the display interface for the IFIS-5000 system. The MFD consists of two major display areas: the Engine Indicating System (EIS) area at the top of the display and the multifunction window below it. The presence of the EIS display is determined by the aircraft manufacturer. When the EIS display is not present, the multifunction window includes the EIS display area as well (e.g., the entire MFD is used for display). The multifunction window is divided into two sub-areas: the upper display area and the lower display area. The upper display area is used for the Checklist (CHKLST) function and an FMS text-only format (FMS - TEXT). The lower display area is used for the navigation displays and Graphical Weather (GWX) format.

MULTIFUNCTION DISPLAY (MFD) (AFD-5220E)

TPH9101_01

The MFD is the display interface for the IFIS-5000 system. The MFD consists of two major display areas: the Engine Indicating System (EIS) area at the top of the display and the multifunction window below it. The presence of the EIS display is determined by the aircraft manufacturer. When the EIS display is not present, the multifunction window includes the EIS display area as well (e.g., the entire MFD is used for display). The multifunction window is divided into two sub-areas: the upper display area and the lower display area. The upper display area is used for the Checklist (CHKLST) function and an FMS text-only format (FMS - TEXT). The lower display area is used for the navigation displays and Graphical Weather (GWX) format.

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MENUS AND DISPLAYS

INTRODUCTION

The IFIS-5000 (Integrated Flight Information System) is an evolution of the current Rockwell Collins Pro Line 21 system. Specifically, it is a Multifunction Display (MFD) upgrade that adds Electronic Charts (E-Charts), Graphical Weather (GWX), and Enhanced Map (E-Map) features (e.g., rivers, lakes, state and national boundaries) to traditional map displays. A Database Effectivity page is included to provide the aircraft operator with the effective dates of the installed databases. A Chart Subscription page allows the flight crew or maintenance personnel to change the E-Chart region coverage of the database as subscription service changes.

The E-Charts feature requires a cyclical (every 14 days) database update that is provided by Jeppesen via subscription. This subscription is available by geographic regions of the world.

The GWX feature requires a yearly database update.

The E-Maps feature requires a cyclical (every 28 days) database update that is provided by Rockwell Collins. This database covers the entire world.

The IFIS-5000 also adds a number of text datalink messaging features to the CDU. Refer to the Rockwell Collins Corporate Datalink System CMU-4000/RIU-40X0 operator's guide (CPN 523-0790499) for additional details.

CAUTION

The IFIS features described in this document are not available when the MFD is reverted to a Primary Flight Display (PFD). All IFIS functions are lost when the MFD is in its reversion format.

NOTE

The CDU is used to enter flight plan information into the FMS to control the display of FMS-supplied background map data, to send and receive text datalink messages, and to request and display Universal Weather-supplied GWX images. These features are described in detail in the applicable FMS and CMU operators guides.

NOTE

The MFD consists of two major display areas: the Engine Indicating System (EIS) area at the top of the display and the multifunction window below it. The presence of the EIS display is determined by the aircraft manufacturer. When the EIS display is not present, the entire MFD is used for display.

E-CHARTS (AFD-3010E)

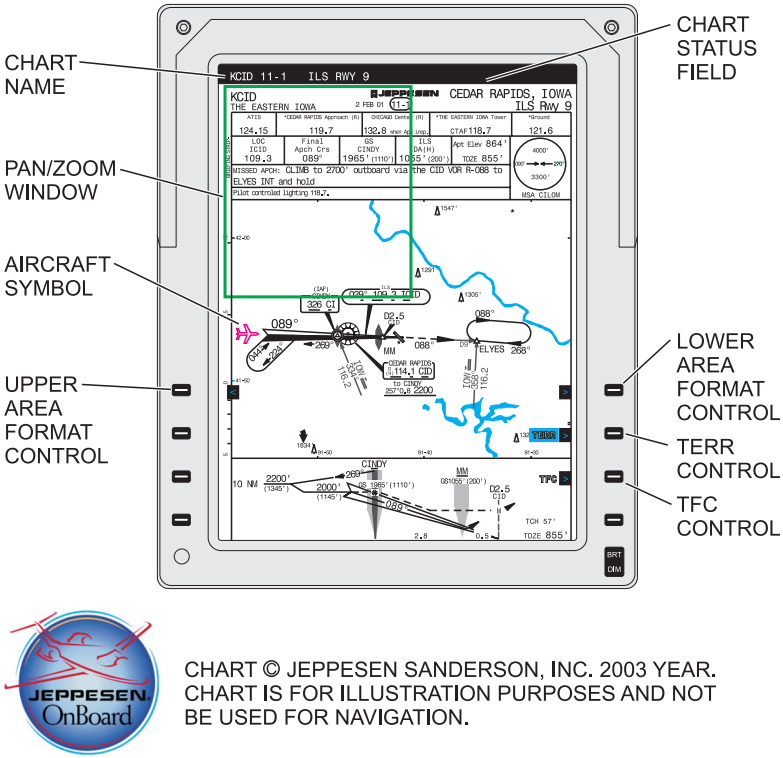
The E-Chart format provides the ability to show an electronic version of a conventional paper instrument chart on the MFD. The E-Charts are linked automatically by the FMS when a flight plan is entered and can also be selected manually by the flight crew. The available charts are listed on the Chart Main Index. Controls for chart selection are on the CCP. When aircraft position data is available, a moving aircraft symbol shows on E-Charts that are geographic-referenced. A non-geographic-referenced chart will have a magenta aircraft symbol with a circle and slash on the top right hand corner of the chart.

NOTE

The use of E-Charts with the geographic-referenced aircraft symbol does not relieve the flight crew of responsibility for navigation.

DISPLAY CHART (AFD-3010E)

Figure 8-1 Display Chart Format (AFD-3010E)



TPG3094_20

The selected Jeppesen E-Chart shows when selected by the flight crew. Controls on the CCP are used to select a chart for display, pan around the chart, zoom in or out on the chart, and change the orientation of the chart.

A moving aircraft symbol shows on the chart when the chart is geographically-referenced, as determined by the Jeppesen database, and the aircraft position is within the geographically-referenced part of the chart.

NOTE

In version -103 and -104, the aircraft symbol shows for ICAOs in the USA only. For version -105, -106, and -108 the aircraft symbol shows for any ICAO that is World Geodetic System 1984 (WGS-84) compliant.

▼ SELECTIONS:

Chart Name	The name of the chart in view shows immediately above the chart. The chart name includes the airport ID, chart index number and procedure ID.
Aircraft Symbol	A moving aircraft symbol shows on the chart when the chart is geographically-referenced, as determined by the Jeppesen database and the aircraft position is within the geographically-referenced part of the chart. The moving aircraft symbol shows the current aircraft position latitude and longitude as determined by the same side Global Positioning System (GPS). The nose of the aircraft symbol is oriented toward the aircraft true heading. When the same side GPS data is absent or invalid, the opposite side GPS is used.

NOTE

GPS is constantly calculating position and is accurate within a window. The aircraft symbol is positioned accordingly on the chart. The result may be that the aircraft symbol may move slightly, which is most noticeable on the airport charts when the aircraft is not moving.

NOTE

In version –104/004 FSA4.X, the aircraft symbol shows for ICAOs in the USA only. For version -105, -106, and -108 the aircraft symbol shows for any ICAO that is World Geodetic System 1984 (WGS-84) compliant.

A crossed-out aircraft symbol shows above the chart to indicate when the aircraft position cannot be displayed on the chart. The crossed-out aircraft symbol shows above and to the right of the chart name. The symbol is yellow when a geographically-referenced chart is in view and GPS present position data is not available. The symbol is magenta when the chart in view is not geographically-referenced.

GEO-REFERENCED NO GPS PPOS DATA

NOT GEO-REFERENCED

TPG3094_31

Chart Cycle Messages

Early/late cycle chart messages show in the chart status field to the right of the chart name. The message that shows are one of the items that follow (in order of priority):

- OUT OF DATE
- CHECK DATE.

NOTE

The CHECK DATE message may appear for a short period of time while the GPS tries to acquire satellites. If satellites are not in view (e.g., while the aircraft is in a hangar), the CHECK DATE message may persist and the system is unable to automatically check for database effectivity.

Chart Orientation

When a new chart is selected, the orientation is set to its default (portrait or landscape) as determined from the Jeppesen database. The first push of the orientation button (located below CHART button on the CCP) rotates the chart 90 degrees. The second push rotates the chart back to its original orientation.

Chart Scaling

When a new chart is selected, the chart is initially scaled such that the width of the chart fills the display. Operate the joystick to move the pan/zoom window to the area of the chart that the flight crew wishes to view. The first push of the ZOOM button expands the region of the chart enclosed within the pan indicator so it fills the chart format. The second push of the ZOOM button returns the chart to the normal scaling.

Chart Panning

When zoomed in, operate the joystick to move the desired area of the chart into view on the MFD. Moving the joystick in the horizontal moves the pan/zoom window horizontally on the chart. Moving the joystick in the vertical axis moves the pan/zoom window vertically.

TECH DETAIL

The last viewed orientation, zoom, and pan positions are recalled and displayed the next time each chart is in view.

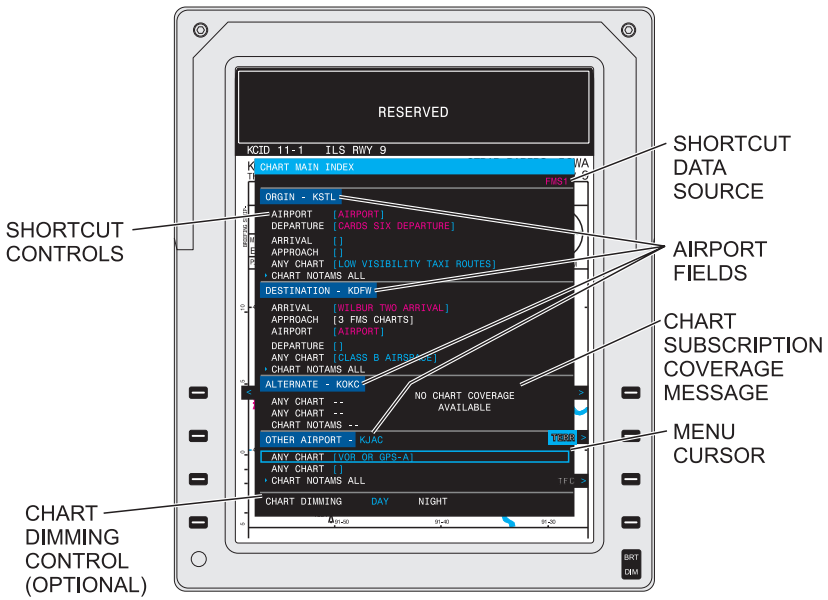
Fault Messages

The fault messages that follow may be in view on the MFD when an E-Chart is in view:

- CHARTS INOP
- CHART FAULT
- NO CHART AVAILABLE.

CHART MAIN INDEX (AFD-3010E)

Figure 8-2 Chart Main Index (AFD-3010E)



TPG3094_15

The Chart Main Index shows the list of shortcuts to the charts needed for the procedures associated with the origin, destination, and alternate airport. Selecting one of these shortcuts causes the associated chart to show. The origin, destination, and alternate airport entries are supplied by the FMS when a compatible FMS is installed and a flight plan is entered. The Other Airport entry is always entered by the flight crew on this menu.

NOTE

The origin, destination, and alternate airport entries are entered by the flight crew when a compatible FMS is not installed.

Controls on the CCP are used for data entry. Data entry mode is used to enter airport IDs. An optional chart dimming control is provided at the bottom of the Chart Main Index.

▼ SELECTIONS:

Airport Fields	When a compatible FMS is installed, the ICAO Identifier (ID) of the origin, destination, alternate, and one other airport shows next to the associated headers (e.g., ORIGIN – KCID). The airport IDs are supplied by the FMS and based on the active flight plan. The ICAO identifier of the other airport always shows as a data entry field next to the header. When a compatible FMS is not installed, data entry fields show next to all of the airport fields. The data entry fields allow the flight crew to enter the desired airport.
Shortcut Controls	Shortcut controls show below the origin, destination, alternate, and other airport fields/airport IDs on the Chart Main Index. The shortcut controls identify the selected chart and provide a quick means of selecting the indicated chart.

- ORIGIN — Controls for the AIRPORT, DEPARTURE, ARRIVAL, APPROACH, ANY CHART and CHART NOTAMS ALL shortcuts show below the ORIGIN header and airport ID.
- DESTINATION — Controls for the ARRIVAL, APPROACH, AIRPORT, DEPARTURE, ANY CHART and CHART NOTAMS ALL shortcuts show below the DESTINATION header and airport ID.
- ALTERNATE — Controls for two ANY CHART shortcuts and one CHART NOTAMS ALL shortcut show below the ALTERNATE header and airport ID.
- OTHER AIRPORT — Controls for two ANY CHART shortcuts and one CHART NOTAMS ALL shortcut show below the OTHER AIRPORT header and airport ID.

Shortcut Names

The shortcut name shows next to the associated shortcut control when a chart has been selected automatically by the FMS or manually by the flight crew. The shortcut naming convention is as follows:

- When the chart has been selected automatically by the FMS, the shortcut name is the name of the chart. The shortcut name shows in magenta.
- When the FMS has not found a matching procedure or more than one matching procedure has been found, the shortcut name is SELECT CHART. The shortcut name shows in white.

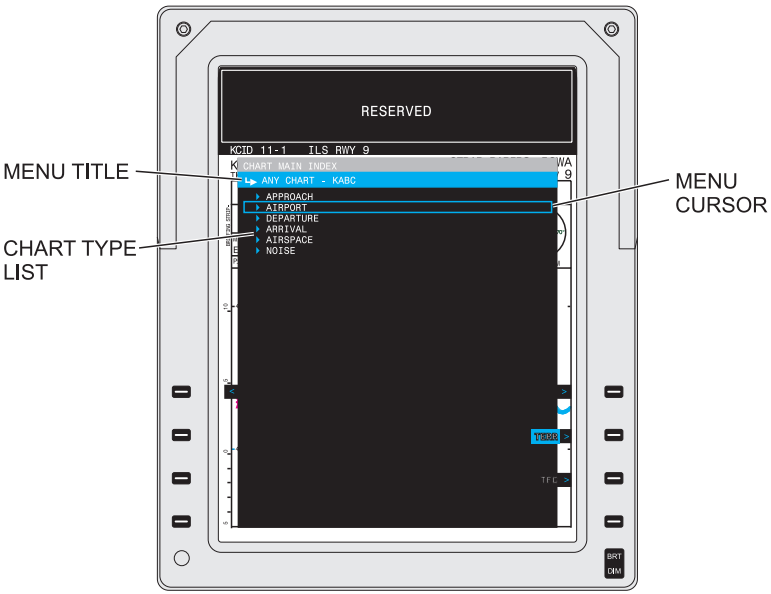
	• When the chart has been selected by the flight crew, the shortcut name is the name of the chart. The shortcuts name shows in cyan.
Shortcut Data Source	The data source for the shortcuts shows in the menu status field on the Chart Main Index. The menu status field is located in the top right corner of the Chart Main Index. The data source annunciation is one of the items that follow: • FMSn (e.g., FMS1 or FMS2) shows in magenta when the selected map source is valid and an active flight plan exists. • FMSn NO DATA AVAILABLE (e.g., FMS1 or FMS2) shows in white when the selected map source is invalid. • CHART PRESETS shows in white when a non-compatible FMS is installed.
NO CHART COVERAGE AVAILABLE Message	When the origin, destination, or alternate airports are not covered by the regions contained within the current chart subscription, the message NO CHART COVERAGE AVAILABLE shows for that airport. The message shows in white to the right of the associated airport header (e.g., origin, destination, alternate, or other airport).
Data Entry Field	Data entry mode is used to enter airport IDs for the airport search function.

Chart Dimming Control (optional)

An optional chart dimming control is provided at the bottom of the Chart Main Index, which allows the flight crew to select the Day or Night color.

CHART TYPE MENU (AFD-3010E)

Figure 8-3 Chart Type Menu (AFD-3010E)



TPG3094_12

The Chart Type menu is accessed via the ANY CHART selection on the Chart Main Index. The Chart Type menu shows a list of the chart types available for the selected airport. Selecting an item from the list causes the Chart List to come into view. The Chart List shows a list of the charts that are available of the selected type (e.g., APPROACH) for the selected airport.

▼ SELECTIONS:

Menu Title

The menu title shows below the CHART MAIN INDEX header at the top of the menu. The menu title allows the user to know where they are in the menu. The menu title shows as ANY CHART followed by the airport ID (e.g., ANY CHART KABC). The airport ID identifies the selected airport.

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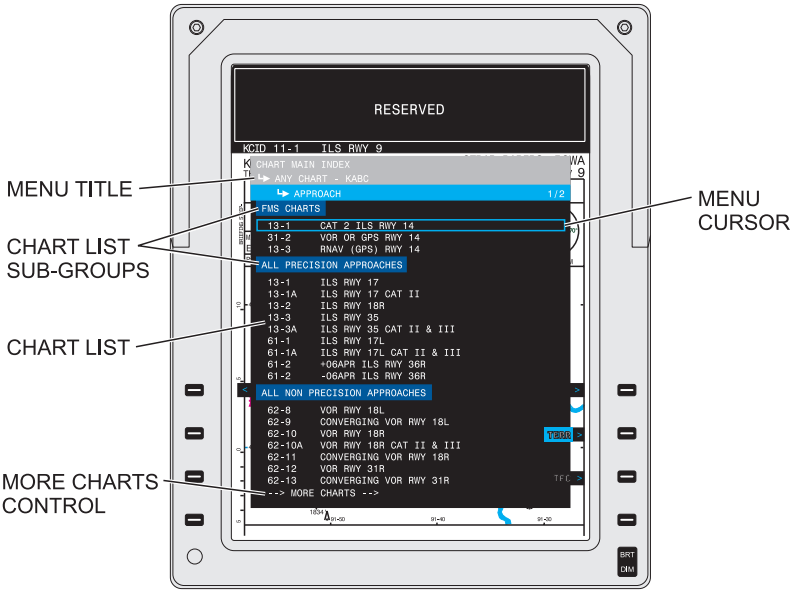
Chart Type List

A list of the chart types that are available for the selected airport shows below the airport ID. The possible chart types are as follows.

- APPROACH
- AIRPORT
- DEPARTURE
- ARRIVAL
- AIRSPACE
- NOISE.

CHART LIST (AFD-3010E)

Figure 8-4 Chart List (AFD-3010E)

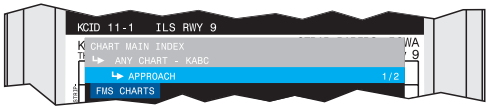


TPG3094_14

The Chart List is accessed via the Display Chart or the Chart Main Index or the Chart Type menus. The Chart List shows a list of charts of the selected type (e.g., APPROACH) for the selected airport. When a chart is selected via the Display Chart method, the newly selected chart comes into view on the MFD. When a chart is selected, the associated shortcut on the Chart Main Index is updated to the new selection.

▼ SELECTIONS:

Menu Title	The menu title shows below the CHART MAIN INDEX header at the top of the menu. The menu title allows the user to know where they are in the menu. The menu title shows as ANY CHART followed by the airport ID. The airport ID identifies the selected airport.



TPF3094_32

Chart List Sub-Groups

The charts that show on the Chart List are listed in order of their sub-groups. The sub-groups, in order, are as follows:

- The sub-group FMS CHARTS shows when the FMS flight plan includes a procedure that matches the type of Chart List in view.
- The sub-group ALL PRECISION APPROACHES shows when the chart type is APPROACH and at least one precision approach is available for the selected airport.
- The sub-group ALL NON-PRECISION APPROACHES shows when the chart type is APPROACH and at least one non-precision approach is available for the selected airport.
- The sub-group ALL plus the chart type (e.g., ALL ARRIVALS) shows when the chart type is ANY CHART.

Chart List

The charts are listed below their sub-group in order of their index numbers, with the lowest index number at the top of the menu.

Chart Names

The chart names show to the right of the chart index numbers on the Chart List. The chart name for any current chart is the procedure ID (e.g., ILS RWY 9).

Chart Updates

Jeppesen allows for charts to be updated midway through the effective dates of a database. Under these conditions, the database will contain additional charts that become effective on a given date. A chart in the list shows in white if the effectivity date indicates that it is a current chart. An item in the list shows in yellow when its effectivity date indicates that it is not current. A chart is considered not current when one of the items that follow occurs:

- There is a new chart and its effectivity date has not yet occurred.
- The chart is to be deleted and its effectivity date has passed.
- The chart is the early cycle of a mid-cycle revision and the current date/time is the late cycle of the database.
- The chart is the late cycle of a mid-cycle revision and the current date/time is the early cycle of the database.

TECH DETAIL

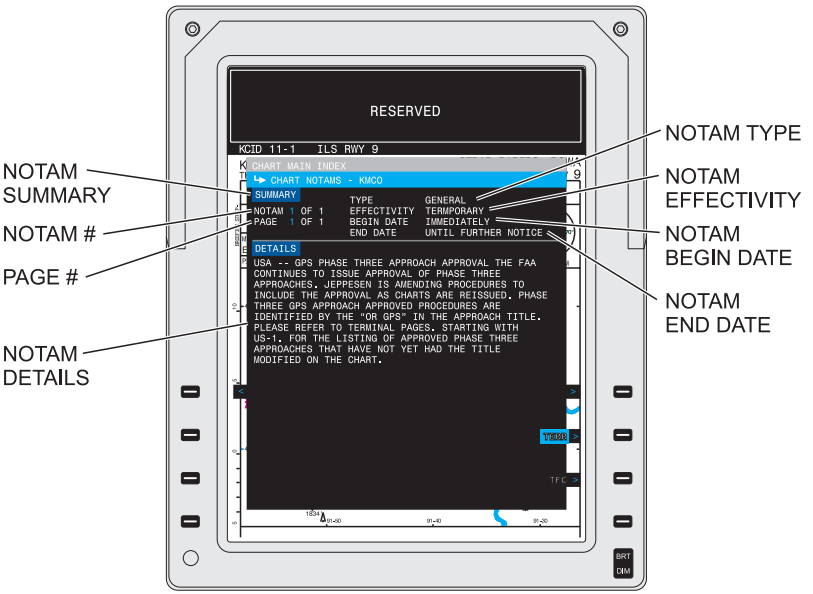
The switch-over time for Jeppesen E-Charts is 09:01 Coordinated Universal Time (UTC). If the current UTC is earlier than 09:01 of the chart's begin date, or later than 09:01 of the chart's end date, the chart is considered noncurrent.

A chart that is being revised mid-cycle is identified as follows:

- A chart name with a minus sign and a date preceding the procedure ID (e.g., -06APR ILS RWY 36R) is effective up to the date that shows.
- A chart name with a plus symbol and a date preceding the procedure ID (e.g., +06APR ILS RWY 36R) is effective on and after the date that shows.

NOTAMS MENU (AFD-3010E)

Figure 8-5 NOTAMS Menu (AFD-3010E)



TPG3094_16

The CHART NOTAMS menu shows the CHART NOTAMS available for the selected airport. The page is broken into two fields: the NOTAM summary and NOTAM details. When more than one NOTAM is available for the selected airport, the selected NOTAM and total number of NOTAMs shows in the summary field. The selected NOTAM readout is also a data entry field that allows the user to select another NOTAM

for viewing. The NOTAM type, effectivity, begin date, and end date show in the summery field. The NOTAM text as defined in the Jeppesen charts database shows in the details field.

NOTE

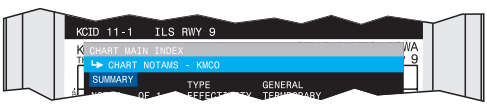
When there are temporary changes to enroute or terminal charts, these changes are included in Jeppesen's Chart NOTAMs. The Chart NOTAMs are sometimes used for last-minute changes that missed the cutoff dates for changes. These NOTAMs are usually produced every two weeks. It is important to note that the Chart NOTAMs only highlight changes to the Jeppesen charts and do not substitute for the NOTAMs issued by the Federal Aviation Administration (FAA).

NOTE

New NOTAMs can be issued at any time by the FAA. These new NOTAMs may not be in the database installed in the FSU until the next database update. Prior to departure, always ensure that the latest NOTAMs are available either by requesting them using the onboard datalink or as hard copy.

▼ SELECTIONS:

Menu Title	The menu title shows below the CHART MAIN INDEX header at the top of the menu. The menu title allows the user to know where they are in the menu. The menu title shows as: CHART NOTAMS followed by the airport ID. The airport ID identifies the selected airport.
NOTAM Type	The NOTAM Type, either TERMINAL or GENERAL, shows next to the TYPE header in the Summary field.



TPF3094_30

NOTAM Effectivity	The NOTAM effectivity shows as TEMPORARY or PERMANENT as defined in the Jeppesen charts database. The NOTAM effectivity shows next to the EFFECTIVITY header in the Summary field.
NOTAM Begin Date	The begin date, as defined in the Jeppesen charts database, shows next to the BEGIN DATE header in the Summary field. The begin date shows as one of the items that follow: • IMMEDIATELY • NO BEGIN DATE • DD MMM YY (specified date).
NOTAM End Date	The end date, as defined in the Jeppesen charts database, shows next to the END DATE header in the Summary field. A text message or date shows for the end as one of the items that follow: • UNTIL FURTHER NOTICE • NO END DATE • DD MMM YY (specified date).
NOTAM #	When more than one NOTAM is available for the selected airport, the number of available NOTAMs shows next to the NOTAM legend. The first number is the selected NOTAM and the second number is the total number of NOTAMS for this airport. The NOTAMS are listed in the order that follows: 1. By type: Terminal NOTAMS first, then General. 2. By effectivity: Permanent NOTAMS first, then Temporary.

3. By begin date: IMMEDIATELY first, then by date, earliest to latest.

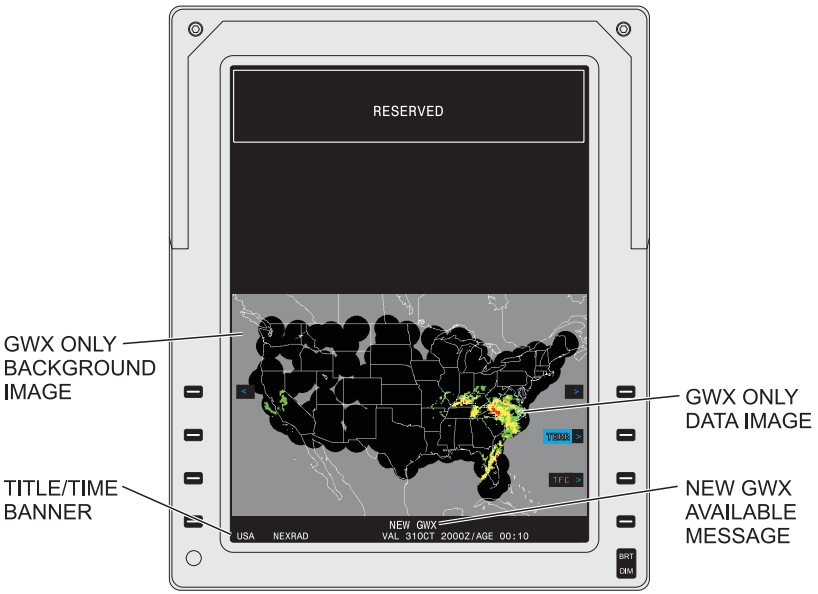
NOTAM Messages

The messages that follow may be in view on the MFD when the NOTAMs menu is active:

- PROCESSING REQUEST
- NOTAM DATA FAULT.

GRAPHICAL WEATHER (GWX-5000) (AFD-3010E)

Figure 8-6 Graphical Weather Format



TPG3094_17

The Graphical Weather (GWX) format provides the ability to show one GWX image at a time on the MFD. New GWX images are requested by the flight crew via controls on the CDU. (Refer to the Rockwell Collins Corporate Datalink System CMU-4000/RIU-40X0 operator's guide, CPN 523-0790499, for detailed information on using the CDU to request and view GWX images).

The GWX images are uplinked via VHF datalink system from the Information Service Provider (Universal Weather). A list of saved and available GWX images shows on the MFD when requested by the flight crew. Using controls on the CCP, the flight crew selects the desired GWX image to show on the MFD.

The GWX image can be a forecast or an observation image. Forecast images include WINDS ALOFT, ICING, and TURBULENCE. Observation images include NEXRAD, TOPS/MOVEMENT, and Weather (WX) DEPICTION. Each datalinked GWX image is paired with

a corresponding geopolitical background image. A title/time banner shows for each GWX image.

NOTE

Datalinked GWX is for informational purposes and should not be used for tactical decision making. By its very nature, datalinked GWX is delayed from real time weather conditions.

NOTE

The USA NEXRAD precipitation image is the only image available as an overlay on the Plan Map format. Refer to the Plan Map figure on page 8-70 for more information.

NOTE

On occasion, the National Weather Service incorrectly identifies test data that will exhibit unrealistic weather patterns. Examples are: 1) donut-shaped pattern, 2) pie-slice-shaped pattern, 3) circle-shaped pattern, and 4) bulls-eye-shaped pattern. If an image of this nature is encountered and you suspect the data is in error, wait until the next image update cycle, request a new image, and verify the test pattern is removed.

GWX IMAGE LIST (AFD-3010E)

Figure 8-7 GWX Image List (AFD-3010E)

TPG3094_11

For each GWX image on the list, a region abbreviation, name of the image, date, month and time of the image show. The date, month, and time of the next available image for each image also shows for each GWX item on the list. New GWX images can be added to the list via the CDU REQ GWX page. The newest image to be received shows at the top of the list. The GWX region name and region abbreviations are as follows:

GWX Region Abbreviations

GWX Abbreviation	Region Description
AFR	Africa
AUS	Australia
EUR	Europe
INDIA	India
N-AM	North America
N-ATL	North Atlantic
N-PAC	North Pacific
S-AM	South America
S-PAC	South Pacific

GWX Abbreviation	Region Description
W-PAC	West Pacific
UK	United Kingdom
NC-US	North Central United States
NE-US	Northeast United States
NW-US	Northwest United States
SC-US	South Central United States
SE-US	Southeast United States
SW-US	Southwest United States
USA	United States

NOTE

The list will hold a maximum of 50 items. The oldest item is removed from the list as new items are added.

▼ SELECTIONS:

Graphical Images

The corresponding graphical weather image is in view on the MFD when the image is selected from the GWX Image list. An example image of each graphical weather image type and an accompanying description are as follows:

- NEXRAD — Refer to the figure on page 8-28
- TOPS/MOVEMENT — Refer to the figure on page 8-29
- WX DEPICTION — Refer to the figure on page 8-31
- WINDS ALOFT — Refer to the figure on page 8-33
- TURBULENCE — Refer to the figure on page 8-35

- ICING — Refer to the figure on page 8-36.

New Images

New graphical weather images can be added to the list via the CDU. When the system receives a new (uploaded) image, the text message NEW GWX shows on the MFD. The message is cleared by entry into the Image list. The CDU also displays the message GWX RECEIVED. The newest image to be received shows at the top of the list. Refer to the applicable CMU operator's guide for details on uploading images and adding to the Image list.

NOTE

As long as images in the entry list remain unviewed, the message GWX RECEIVED continues to show on the CDU.

New images are available according to the schedule that follows:

New Image Schedules

Image Type	Schedule
NEXRAD	Every 6 minutes
Echo Tops/ Movement	Every 30 minutes (Typically available at 10 and 40 minutes past the hour)
WX Depiction	Every 60 minutes (Typically available at 20 minutes past the hour)
Winds Aloft	0Z, 6Z, 12Z, 18Z, 30 hr, 36 hr, 42 hr, 48 hr, 72 hr.
Turbulence	0Z, 6Z, 12Z, 18Z, 30 hr, 36 hr, 42 hr, 48 hr, 72 hr.
Icing	0Z, 6Z, 12Z, 18Z, 30 hr, 36 hr, 42 hr, 48 hr, 72 hr.

TECH DETAIL

The Z (Zulu) forecast times refer to that time in the future for weather forecasts. Therefore, if the current time is 15Z, an 18Z forecast is for 18Z today and a 12Z forecast is for 12Z tomorrow. The HR (Hour) forecast times refer to the number of hours since the last model run for weather forecasts. The model runs are completed at 0Z and 12Z each day. Therefore, if the current time is 15Z, a 30HR forecast is for 18Z tomorrow (e.g., 30 hours from the last model run, which is 12Z today).

Retention of Images

NEXRAD, forecast, and observation images are retained as follows:

- For each NEXRAD region, up to the five most current unique images are retained.
- When not overwritten by a newer image, images are purged at the time intervals that follow when on the ground:

Image Purge Schedules

IMAGE TYPE	PURGE TIME
NEXRAD	Valid time + 75 minutes
WX DEPICTION	Valid time + 90 minutes
TOPS/MOVEMENT	Valid time + 75 minutes
WINDS ALOFT	Valid time + 9 hours
ICING	Valid time + 9 hours
TURBULENCE	Valid time + 9 hours

Old Images

The menu item shows in yellow within a yellow box when the image is old. Images are considered old when the current time exceeds the product's next available time by more than 30 minutes.

Geopolitical Background Image

Each datalinked GWX image is paired with a corresponding geopolitical background image. The geopolitical background image shows geographic and political borders. The borders show in white with a black background.

Title/Time Banner

A title/time banner shows along the bottom of the display when a GWX image is in view. Two different formats are available on the title/time banner, one for a forecast image and one for an observation image.

- For a forecast image, the region name, image name, valid date/month/time of the image, and the issue day/month/time of the image show on the title/time banner. Forecasts include Winds Aloft, Icing, and Turbulence images.
- For an observation image, the region name (e.g., USA), image name (e.g., NEXRAD), the valid day/month/time, and age of the image in hours and minutes show on the title/time banner. Observations include NEXRAD, Tops & Movement, and Weather Depiction images.

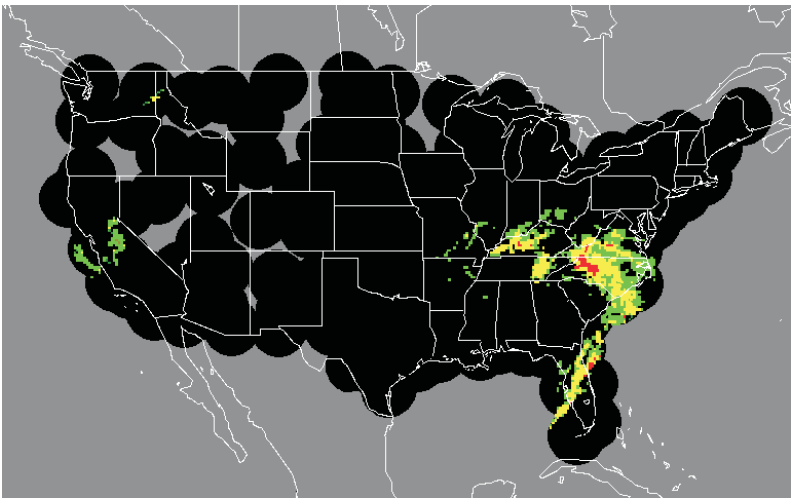
GWX Messages

The messages that follow may be in view on the MFD when the GWX format is active:

- GWX FAULT
- NO IMAGE AVAILABLE
- PROCESSING REQUEST.

GRAPHICAL WEATHER IMAGES (AFD-3010E)

Figure 8-8 NEXRAD Image (AFD-3010E)



NEXRAD

TPG3094_23

A NEXRAD image is in view on the lower display area of the MFD when selected from the GWX Image list and the GWX format is active.

NOTE

On occasion, the National Weather Service incorrectly identifies test data that will exhibit unrealistic weather patterns. Examples are: 1) donut-shaped pattern, 2) pie-slice-shaped pattern, 3) circle-shaped pattern, and 4) bulls-eye-shaped pattern. If an image of this nature is encountered and you suspect the data is in error, wait until the next image update cycle, request a new image, and verify the test pattern is removed.

▼ SELECTIONS:

NEXRAD Image Colors	The table that follows lists the colors used on NEXRAD images to represent areas of precipitation and the relative intensity:

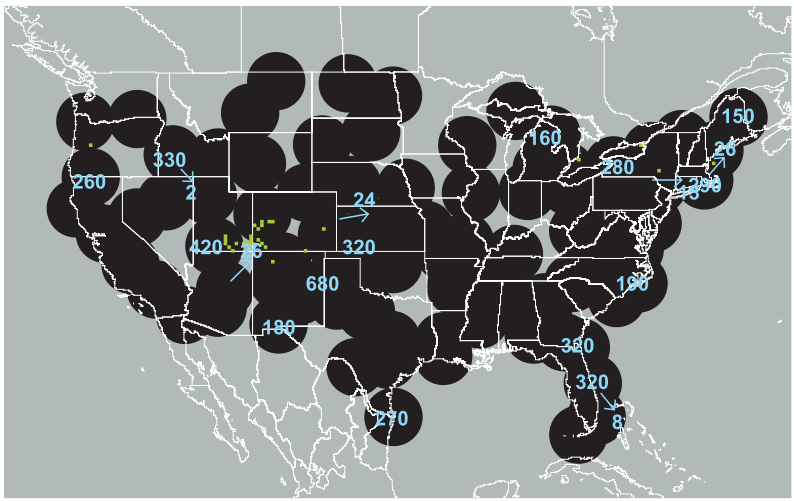
NEXRAD Color Coding

Precipitation Intensity	Color
20 ≤ dBZ < 30	Green ( )
30 ≤ dBZ < 40	Yellow ( )
dBZ ≥ 40	Red ( )

NOTE

The intensity of snow and rain shows using the same color coding.

Figure 8-9 Tops/Movement Image (AFD-3010E)



TOPS/MOVEMENT

TPG3094_27

A Tops/Movement image is in view on the lower display area of the MFD when selected from the GWX Image list and the GWX format is active.

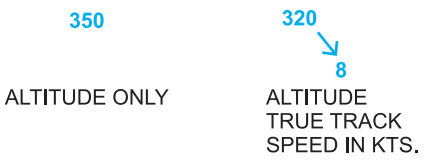
NOTE

On occasion, the National Weather Service incorrectly identifies test data that will exhibit unrealistic weather patterns. Examples are: 1) donut-shaped pattern, 2) pie-slice-shaped pattern, 3) circle-shaped pattern, and 4) bulls-eye-shaped pattern. If an image of this nature is encountered and you suspect the data is in error, wait until the next image update cycle, request a new image, and verify the test pattern is removed.

▼ SELECTIONS:

Tops/Movement Image Symbology

Precipitation symbology, echo tops, and cell movement information shows on Tops/Movement images. Echo tops and cell movement show for major storm cells. The altitude of the radar tops in hundreds of feet shows in blue centered over the storm cell. If more than one storm type is indicated for a single storm cell, only the most severe type shows. For storm cells with measurable ground speed, a track arrow is drawn from the center point of the storm cell out in the direction of the true track of the cell. A ground speed readout in knots shows at the end of the track arrow.

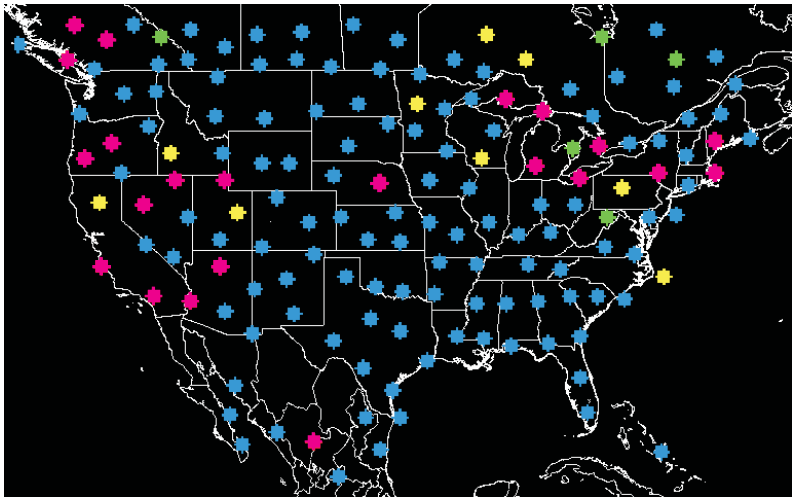


The table that follows lists the colors used on TOPS/MOVEMENT images to represent areas of precipitation and the relative intensity:

Tops/Movement Color Coding

Precipitation Intensity	Color
20 ≤ dBZ < 30	Green ( )
30 ≤ dBZ < 40	Yellow ( )
dBZ ≥ 40	Red ( )

Figure 8-10 WX Depiction Image (AFD-3010E)



WX DEPICTION

TPG3094_28

A WX DEPICTION image is in view on the lower display area of the MFD when selected from the GWX Image list and the GWX format is active. The WX DEPICTION chart shows forecast visibility and ceiling conditions for the selected region.

▼ SELECTIONS:

WX DEPICTION Image Colors	The table that follows lists the categorical outlook definitions used by Universal Weather:

Flight Rule Condition Definitions (Universal Weather)

Flight Rule Condition	Definition
VFR	Ceiling > 3000 ft and Visibility > 5 statute miles (8.05 km or 6400 m)
Marginal VFR	Ceiling ≤ 3000 ft or Visibility ≤ 5 sm (8.05 km or 6400 m)
IFR	Ceiling < 1000 ft or Visibility < 3 sm (4.83 km or 5400 m)
Low IFR	Ceiling < 500 ft or Visibility < 1 sm (1.61 km or 1609 m)

The table that follows list the colors used on WX DEPICTION images:

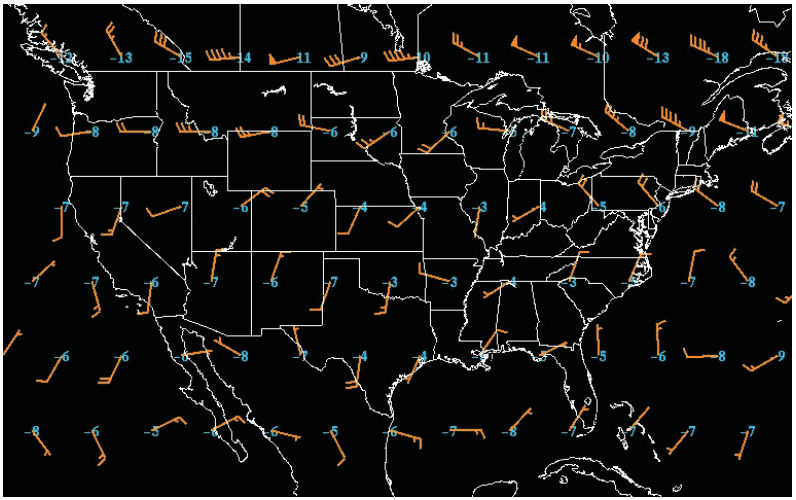
WX DEPICTION Color Coding

Flight Rule Condition	Color
VFR	Sky Blue ( )
Marginal VFR	Green ( )
IFR	Yellow ( )
Low IFR	Magenta ( )

NOTE

WX DEPICTION is based on a finite number of reporting stations. For finer weather detail, refer to other sources such as NEXRAD or TAF reports.

Figure 8-11 Winds/Temps Image (AFD-3010E)



WINDS ALOFT

TPG3094_24

A WINDS ALOFT image is in view on the lower display area of the MFD when selected from the GWX Image list and the GWX format is active. The specified altitudes available for winds aloft images (x 1000 feet) are: 5, 10, 18, 24 30, 34, 39, 45, and 53.

▼ SELECTIONS:

WINDS ALOFT Image Symbology	The Winds Aloft charts depict forecast wind direction, wind speed and temperature at a specified altitude. Wind speed is indicated with the use of pennants and barbs on an arrow. The pennants represent 50 knots, barbs represent 10 knots, and half barbs represent five knots. The total wind speed is obtained by the summation of all the pennants and barbs on the arrow. The head points to the wind direction. The temperatures are depicted next to the grid points in degrees Celsius. A missing wind is represented as M.

The illustration below shows the symbology used in WINDS ALOFT images.

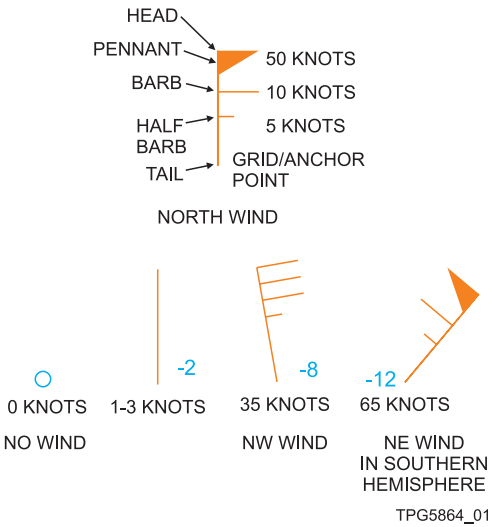
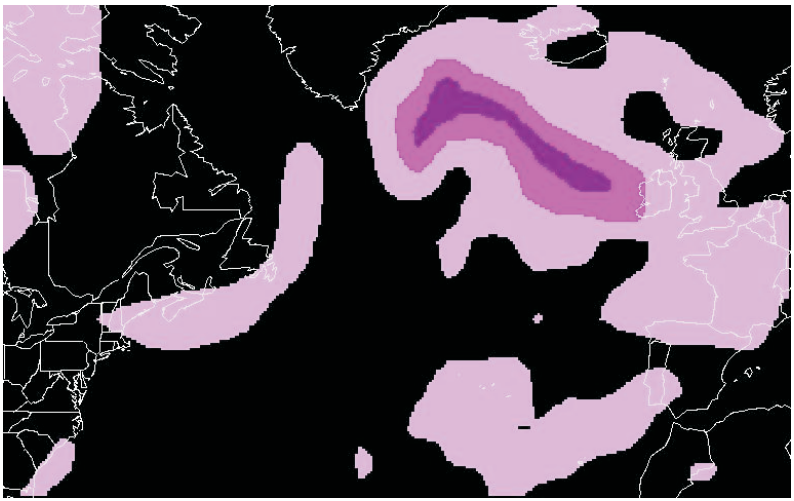


Figure 8-12 Turbulence Image (AFD-3010E)



TURBULENCE

TPG3094_26

A TURBULENCE image is in view on the lower display area of the MFD when selected from the GWX Image list and the GWX format is active. The specified altitudes available for turbulence images (x 1000 feet) are: 5, 10, 18, 24 30, 34, 39, 45, and 53.

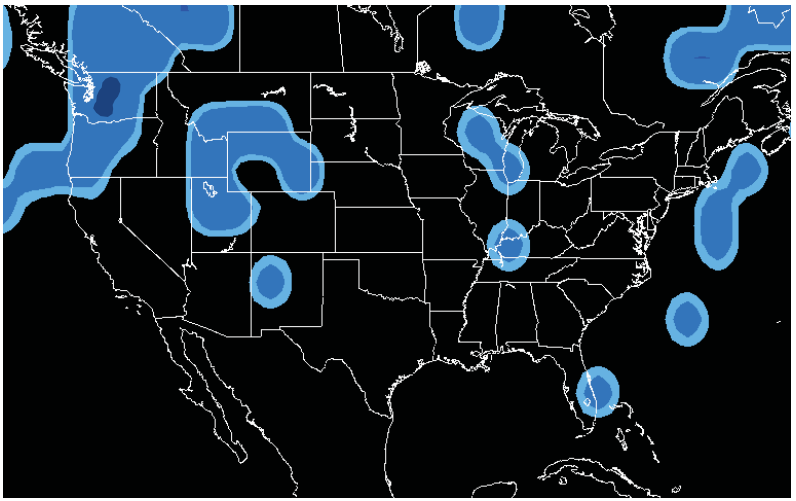
▼ SELECTIONS:

TURBULENCE Image Colors	The table that follows lists the colors used on TURBULENCE images to represent areas of likely turbulence:

TURBULENCE Color Coding

Turbulence Probability	**Color**
Low probability	Light Magenta ( )
Moderate probability	Medium Magenta ( )
High probability	Dark Magenta ( )

Figure 8-13 ICING Image (AFD-3010E)



ICING

TPG3094_25

An ICING image is in view on the lower display area of the MFD when selected from the GWX Image list and the GWX format is active. The specified altitudes available for ICING images (x 1000 feet) are: 0, 5, 10, 18, 24 and 30.

▼ SELECTIONS:

ICING Image Colors

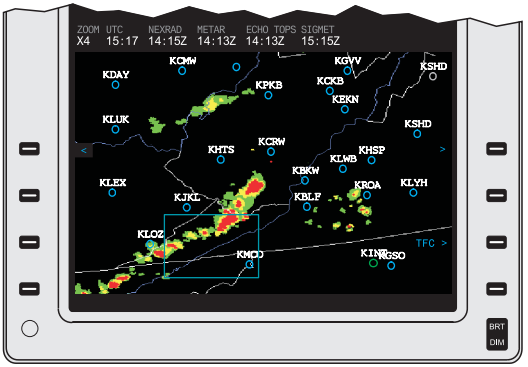
The table that follows lists the colors used on ICING images to represent areas of potential icing:

ICING Color Coding

Icing Potential	**Color**
Trace rime	Light Blue ( )
Trace clear – Light rime or clear	Medium Blue ( )
Light or greater mixed ice	Dark Blue ( )

GRAPHICAL WEATHER (GWX-3000 AND GWX-3001) (AFD-3010E)

Figure 8-14 Graphical Weather Format (AFD-3010E)



TPG5976_01

The Graphical Weather (GWX-3000 & GWX-3001) format provides the ability to show GWX images or reports on the MFD. The GWX images are provided by Baron Services via a satellite Information Service Provider (XM Satellite Weather Service).

The GWX image can be a textual weather report/forecast or a graphical image. Weather reports include Significant Meteorological (SIGMET), Airman's Meteorological (AIRMET) advisories and Aviation Routine Weather Reports (METAR). Weather forecasts are Terminal Area Forecast (TAF). Software -108 also contains Lightning overlay, Winds Aloft, and Satellite images and Temporary Flight Restriction E-Map display. Observation images include NEXRAD and Echo Tops. Selection of the desired image is via the GRAPHICAL WEATHER menu. Refer to the figure on page 8-43.

NOTE

The graphical images are for the whole of the contiguous USA only. No other regions of the world are covered by this weather service provider.

NOTE

GWX is for informational purposes and should not be used for strategic decision making. By its very nature, GWX is delayed from real time weather conditions.

Weather products are transmitted by the satellite on the intervals listed in the table that follows:

XM Weather Products Transmission Schedule

Product	Transmit Interval	Typical Information Update Interval
NEXRAD	5 minutes	5 minutes
METAR	12 minutes	On the hour ± 10 minutes unless special (SA)
ECHO TOPS	90 seconds	30 minutes
SIGMETs	12 minutes	As weather changes
AIRMETs	12 minutes	As weather changes
TAF	12 minutes	Every 6 hours: (0Z, 6Z, 12Z, 18Z) unless amended (ADMT).
LIGHTNING (-108)	5 minutes	5 minutes
SATELLLITE (-108)	10 minutes	10 minutes
WINDS ALOFT (-108)	60 minutes	60 minutes
TFR (-108)	12 minutes	12 minutes

▼ SELECTIONS:

ZOOM	The ZOOM display shows the current selected zoom level under the ZOOM legend. The table below shows the zoom level with the associated relative zoom and the MFD text display.

Zoom Levels

Zoom Level	Relative Zoom Factor	Zoom Text	Relative Map Scale
0	1	X1	Entire CONUS
1	4	X4	1/4 CONUS (≈ 640 NM)
2	4	X16	1/16 CONUS (≈ 160 NM)

Pushing the ZOOM button on the CCP changes the zoom level between the values listed in the table above. Pushing the ZOOM button when the active zoom level is two will select zoom level zero. The zoom level selected when GWX format is re-selected is the last commanded. The area of the image that is zoomed is contained within the pan indicator.

UTC

The current system time shows under the UTC legend.

GWX Product Legend/Time Stamp

The GWX Product Legend and Time Stamp shows when the associated graphical overlay is selected ON from the OVERLAYS (OVERLAY SELECTIONS, -108) menu. The time in view is the time of the observation or report.

Pan Indicator

The pan indicator shows on the graphical display when the joystick on the CCP is moved, the GWX format is active, and the zoom level is zero or one. The pan indicator consists of a green box. Movement of the pan indicator is controlled by the joystick.

Stale Images

A graphical weather image is considered stale when the current time exceeds the products time stamp by the amounts that follow:

Stale Image Times

Image Type	**Stale Time**
NEXRAD	15 minutes
ECHO TOPS	4.5 minutes
METAR	36 minutes
SIGMET	36 minutes
LIGHTNING (-108)	15 minutes
SATELLITE (-108)	15 minutes
WINDS ALOFT (-108)	90 minutes
TFR (-108)	36 minutes

The PLAN Map age readout shows in yellow within a yellow box if the NEXRAD product is stale. The GWX product time stamp shows in yellow within a yellow box if the associated product is stale. Images are deleted if the current time exceeds the product's time by more than two hours.

GWX Message Field

The messages that follow may be in view on the MFD in the GWX message field when the GWX format is selected:

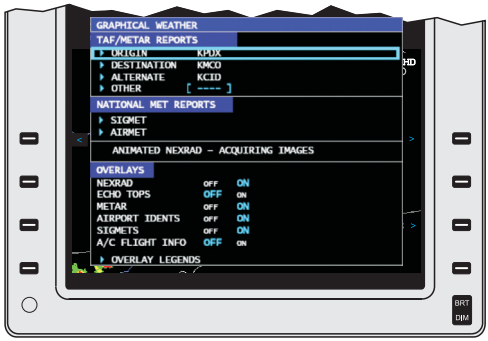
- GWX FAULT
- SUBSCRIPTION EXPIRED
- SIGMET OVERLAY INCOMPLETE CHECK TEXT.

NOTE

If the XM Receiver does not receive a valid satellite signal at power-up (e.g., while the aircraft is in a hangar), the XM Receiver is unable to authorize an XM Weather subscription, resulting in the display of the SUBSCRIPTION EXPIRED message. The SUBSCRIPTION EXPIRED message is in view in the GWX message field on the MFD until the XM Receiver receives a valid satellite signal and completes subscription authorization processing.

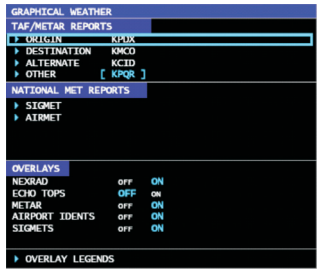
GRAPHICAL WEATHER MENU (AFD-3010E)

Figure 8-15 Graphical Weather Menu (AFD-3010E)



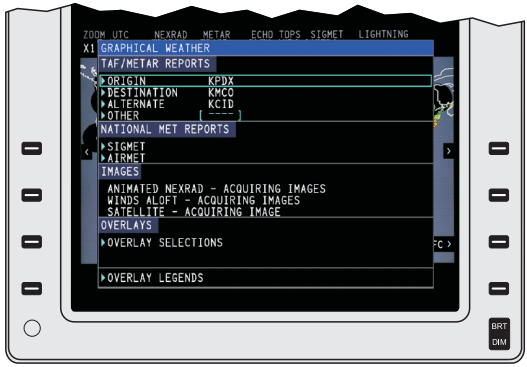
-105, -106 DISPLAY MENU

CURRENT MENU FOR XM



-103, -104 DISPLAY MENU

TPI2179_01



-108 GRAPHICAL WEATHER MENU

TPI1887_01

The GRAPHICAL WEATHER menu provides controls for selection of textual weather reports and forecasts, as well selection of graphical image overlays for the lower display area of the MFD. When software -105, -106, or -108 are installed animated NEXRAD and an Aircraft (A/C) flight information page are also available for display. When software -108 is installed WINDS ALOFT and SATELLITE are also available for display. An Overlay Legends menu provides a key to interpreting the symbology used on the graphical weather overlays.

▼ SELECTIONS:

TAF/METAR REPORTS	The TAF/METAR REPORTS menu provides selections for the ORIGIN, DESTINATION, ALTERNATE, and OTHER airports. When an airport is selected, a list of the three most recent METAR reports available for that airport shows on the first page, in order of most recent to oldest. Refer to the figure on page 8-46. A second page for the airport TAF/METAR reports shows the current TAF report available for that airport. Refer to the figure on page 8-47.
NATIONAL MET REPORTS	The NATIONAL MET REPORTS menu provides selections to display SIGMET and AIRMET reports for the whole of the contiguous USA. When a report type is selected (SIGMET or AIRMET), the appropriate reports page shows, listing all reports in order of the listing below. Each SIGMET and AIRMET is in view on a separate page. Refer to the figure on page 8-48. • SIGMETs — Listed in alphabetical order by identifier • AIRMETs — Listed in the order received.
ANIMATED NEXRAD (-105, -106, -108)	The ANIMATED NEXRAD menu provides a selection for displaying ANIMATED NEXRAD and the status of the ANIMATED NEXRAD images. Refer to the figure on page 8-49.

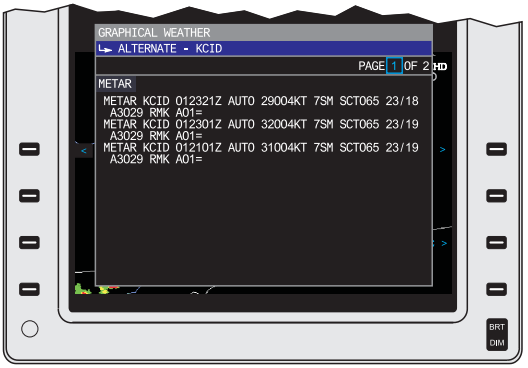
OVERLAYS (-103, -104, -105, -106)	The OVERLAYS menu shows a list of overlays that are available to be in view on the MFD when the GWX format is selected. Refer to the OVERLAYS section below.
OVERLAY SELECTIONS (-108)	The OVERLAY SELECTIONS menu shows a list of overlays that are available to be in view on the MFD when the GWX format is selected. Refer to the OVERLAYS section below.
OVERLAY LEGENDS	The OVERLAY LEGENDS page shows all the symbology used on the overlays to assist the operator with interpreting the information that shows on the overlay. Refer to the figure on page 8-63.
WINDS ALOFT (-108)	The WINDS ALOFT menu provides a selection for displaying WINDS ALOFT and the status of the WINDS ALOFT images. Refer to the figure on page 8-50.
SATELLITE (-108)	The SATELLITE menu provides a selection for displaying SATELLITE and the status of the SATELLITE images. Refer to the figure on page 8-51.

NOTE

The OVERLAY LEGENDS page does not show the orange lightning strike overlay icon.

METAR/TAF REPORTS (AFD-3010E)

Figure 8-16 METAR Reports Page (AFD-3010E)



TPG5976_03

The METAR Reports page displays up to the last three METAR reports for the associated airport.

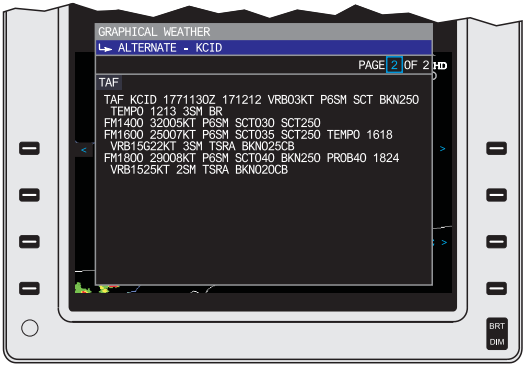
▼ SELECTIONS:

Title	The title for the METARS Report page is one of the items that follow: • ORIGIN <airport ICAO identifier> • DESTINATION <airport ICAO identifier> • ALTERNATE <airport ICAO identifier> • OTHER <airport ICAO identifier>.
METAR Reports	The METAR Reports section shows the three most recent METAR reports for the associated airport. If no METAR text exists for the associated airport, the message NO DATA AVAILABLE shows instead of a METAR report.

NOTE

The only METARS that are available are those received since aircraft power-up or that follow an airport change.

Figure 8-17 TAF Report Page (AFD-3010E)

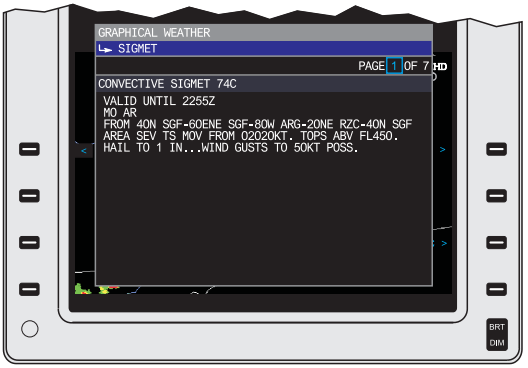


TPG5976_04

The second page of the TAF/METAR Reports pages for the selected airport shows the current TAF report for the airport. The TAF report page shows the TAF report in its entirety.

SIGMET/AIRMET REPORTS (AFD-3010E)

Figure 8-18 SIGMET/AIRMET Reports Page (AFD-3010E)



TPG5976_05

The SIGMET/AIRMET Report page title is either SIGMET or AIRMET, depending on the selection made on the GRAPHICAL WEATHER menu page. When there are multiple reports available, additional pages are available to display the SIGMETs or AIRMETs.

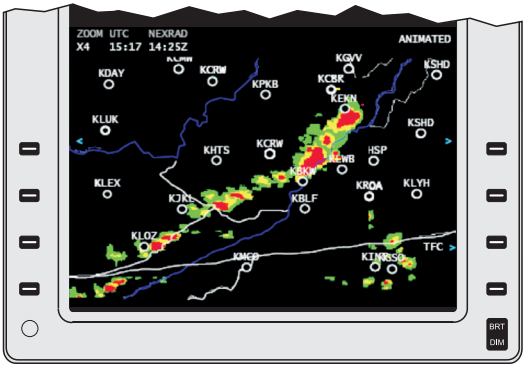
If no graphical SIGMET data is available, the message NO DATA AVAILABLE appears in the upper right corner of the SIGMET Report page.

TECH DETAIL

A maximum of 50 active SIGMET reports and 75 active AIRMET reports can be presented.

ANIMATED NEXRAD (AFD-3010E) (-105, -106, -108)

Figure 8-19 Animated NEXRAD (AFD-3010E) (-105, -106, -108)



TPH1147_01

The ANIMATED NEXRAD state allows the flight crew to view a time elapsed sequence of weather images. The sequence of images runs in a loop using a minimum of three to a maximum of five valid NEXRAD images received from the datalink. The loop sequence runs until canceled. During normal operation the system stores a snap shot of the NEXRAD and associated time stamp, every 15 minutes or greater, as soon as available. A maximum of five snap shots are stored. When ANIMATED NEXRAD mode is selected the stored snapshots are in view as a series of frames in time sequence (oldest first) with a 0.7 second interval between each frame.

NOTE

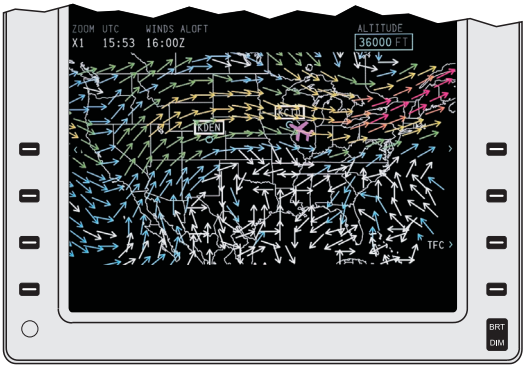
ANIMATED NEXRAD cannot be selectable until three or more valid frames of data have been stored by the system.

The messages that follow can show when ANIMATED NEXRAD is active on the display:

- ACQUIRING IMAGES
- AVAILABLE.

WINDS ALOFT (AFD-3010E) (-108)

Figure 8-20 Winds Aloft Image (AFD-3010E) (-108)



TPI1900_01

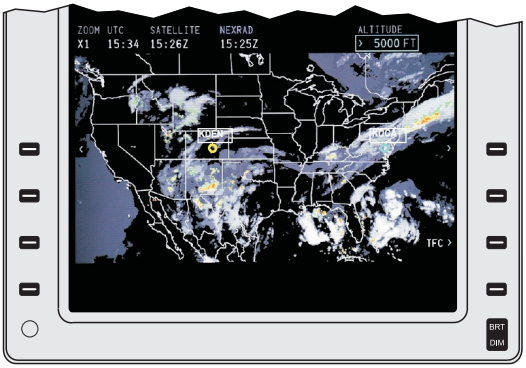
The Winds Aloft (-108) feature displays wind speed and direction from the surface to 42 000 ft. in 3,000 ft. increments. The Winds Aloft data helps select optimized operating altitudes based on flight objectives. Flight crews benefit from graphic depictions of the actual temperature and direction of winds aloft to better determine the effect on aircraft performance, fuel loads, and arrival times.

Winds Aloft Image Colors

Wind Speed (Kts)	**Color**
0 ≤ X < 25	White ( )
25 ≤ X < 50	Blue ( )
50 ≤ X < 75	Green ( )
75 ≤ X < 100	Yellow ( )
100 ≤ X < 125	Orange ( )
X ≥ 125	Magenta ( )

SATELLITE (AFD-3010E) (-108)

Figure 8-21 Satellite Image (AFD-3010E) (-108)



TPI1899_01

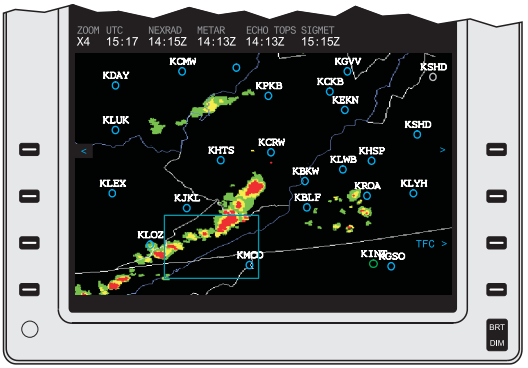
The infrared composite satellite image (-108) shows cloud layers from 5,000 ft. to 40 000 ft. in 5,000 ft. increments. High resolution NEXRAD can be displayed to show areas of various levels of precipitation. The composite image provides the user with an around-the-clock tool to assess the flight conditions in turbulent day and night weather.

OVERLAYS (AFD-3010E)

Condition(s):

When NEXRAD is selected from the OVERLAYS (OVERLAY SELECTIONS, -108) menu, the NEXRAD image is in view on the MFD when the GWX format is selected.

Figure 8-22 NEXRAD Overlay (AFD-3010E)



TPG5976_01

▼ SELECTIONS:

Rain Depiction

The table that follows lists the colors used on NEXRAD images to represent regions of rain precipitation and the relative intensity:

NEXRAD Rain Precipitation Color Coding

Rain Intensity	Color
20 ≤ dBZ < 30	Green ( )
30 ≤ dBZ < 40	Yellow ( )
dBZ ≥ 40	Red ( )

Mixed Precipitation Depiction

The table that follows lists the colors used on NEXRAD images to represent regions of mixed (rain and snow) precipitation and the relative intensity:

NEXRAD Mixed Precipitation Color Coding

Mixed Precipitation Intensity	**Color**
10 ≤ dBZ < 30	Light Magenta ( )
30 ≤ dBZ < 40	Medium Magenta ( )
dBZ ≥ 40	Dark Magenta ( )

Snow Depiction

The table that follows lists the colors used on NEXRAD images to represent regions of snow precipitation and the relative intensity:

NEXRAD Snow Precipitation Color Coding

Snow Intensity	**Color**
10 ≤ dBZ < 30	Light Blue ( )
30 ≤ dBZ < 40	Medium Blue ( )
dBZ ≥ 40	Dark Blue ( )

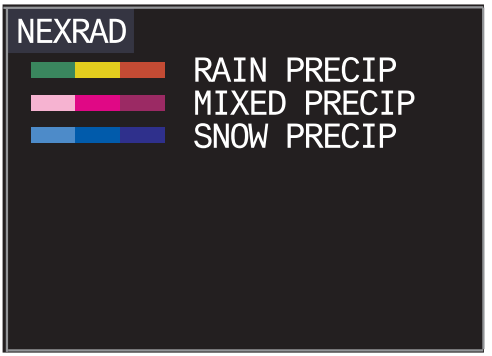
Other Conditions

The table that follows lists the colors used on NEXRAD images to represent other conditions:

NEXRAD Other Conditions Color Coding

Other Condition	**Color**
No significant precipitation	Black (■)
Missing data or no RADAR coverage	Dark Gray (■)

The illustration that follows shows the NEXRAD precipitation depictions and the associated colors:



TPG5884_01

Condition(s):

When ECHO TOPS is selected from the OVERLAYS (OVERLAY SELECTIONS, -108) menu, the ECHO TOPS image is in view on the MFD when the GWX format is selected.

▼ SELECTIONS:

Echo Top Symbology

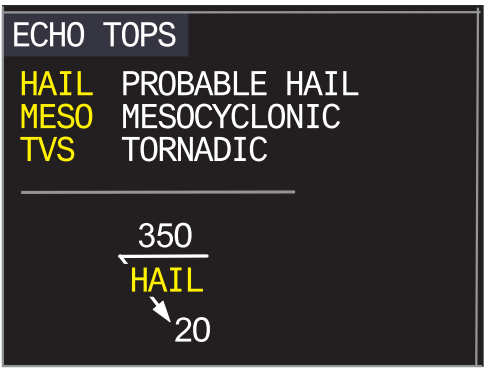
Precipitation symbology, echo tops, and cell movement information shows on Echo Top images. If more than one storm type is indicated for a single storm cell, only the most severe type shows. The Echo Top legend show a white horizontal line drawn with the left most end of the line located at the latitude/longitude of the storm cell. The storm top altitude in hundreds of feet shows above the line in white. A storm type legend is listed under the line. The storm type and color is one of the items that follow:

Echo Top Storm Type

Storm Type Legend	Color
No storm type	<blank>
HAIL	Yellow
MESO	Yellow
TVS	Yellow

A white track arrow is drawn from the latitude/longitude of the storm cell out in the direction of the true track of the cell when track is known. A ground speed readout in knots shows at the end of the track arrow when the groundspeed of the cell is known.

The illustration that follows shows the Echo Tops symbology:

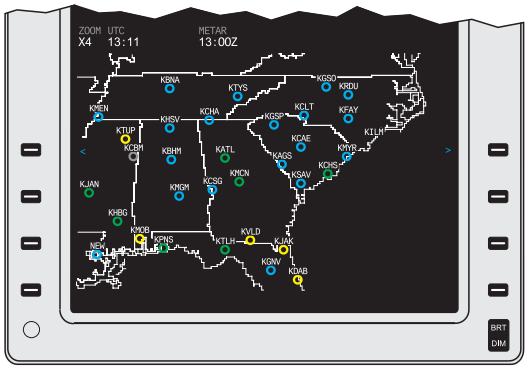

ECHO TOPS
HAIL PROBABLE HAIL
MESO MESOCYCLONIC
TVS TORNADIC
350
HAIL
20

TPG5884_03

Condition(s):

When METAR is selected from the OVERLAYS (OVERLAY SELECTIONS, -108) menu, the graphical METAR image is in view on the MFD when the GWX format is selected.

Figure 8-23 METAR Overlay (AFD-3010E)



TPG5976_07

▼ SELECTIONS:

METAR	The METAR overlay consists of flight rule icons that are colored according to the IMC Flight Rules data received from the datalink for the associated airport. If no data is received or the received data is corrupted or cannot be interpreted, a gray circle shows for the associated airport. To reduce display clutter, the number of displayed icons is filtered based on the selected zoom level. The table that follows lists the categorical outlooks as defined by the FAA:

Flight Rule Condition Definitions (FAA)

Flight Rule Condition	Definition
VFR	Ceiling > 3000 ft and Visibility > 5 statute miles
Marginal VFR	1000 ≤ Ceiling ≤ 3000 ft and/or 3 ≤ Visibility ≤ 5 miles
IFR	500 ≤ Ceiling < 1000 ft and/or 1 ≤ Visibility < 3 miles
Low IFR	Ceiling < 500 ft and/or Visibility < 1 mile

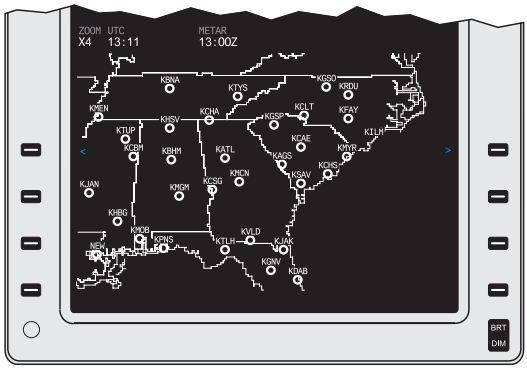
The illustration that follows shows the Flight Rule condition and the associated icon color:

TPG5884_02

Condition(s):

When AIRPORT IDENTS is selected ON from the OVERLAYS (OVERLAY SELECTIONS, -108) menu and the GWX format is selected, the current graphical image on the MFD is overlaid with airport icons.

Figure 8-24 Airport Idents Overlay (AFD-3010E)



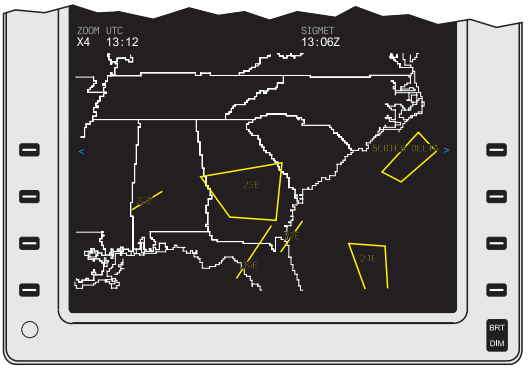
TPG5976_10

The AIRPORT IDENTS depicts airports and reporting stations that are within the currently displayed image. The AIRPORT IDENTS consist of a small circle with the ICAO identifier for the airport above the circle.

Condition(s):

When SIGMET is selected from the OVERLAYS (OVERLAY SELECTIONS, -108) menu, the graphical SIGMET images are in view on the MFD when the GWX format is selected.

Figure 8-25 SIGMET Overlay (AFD-3010E)



TPG5976_08

The SIGMET consists of a point, line, or unfilled polygon that defines the geographic extent of the report and its identifier.

▼ SELECTIONS:

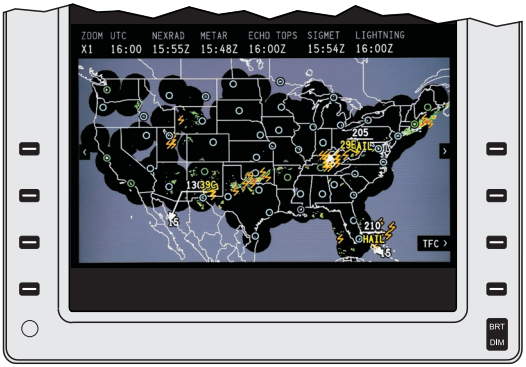
SIGMET	The illustration that follows shows the SIGMET condition and the associated display color:

TPG5884_04

Condition(s):

When LIGHTNING (-108) is selected to ON from the OVERLAY SELECTIONS menu, this display depicts the most recent cloud-to-ground lightning strikes. This provides the flight crew with additional weather data that is not dependant on range or radar returns to improve situational awareness while in flight.

Figure 8-26 Lightning Overlay (AFD-3010E) (-108)



TPI1902_01

The lightning overlay consists of a orange lightning bolt in the area of detected lightning strikes.

▼ SELECTIONS:

LIGHTNING (-108)	The illustration that follows shows a lightning strike overlay and its orange display color (not actual size):

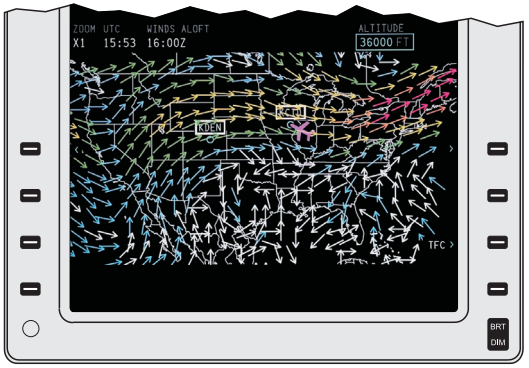
LIGHTNING OVERLAY

TPI1903_01

Condition(s):

In IFIS -105, -106 or -108 upgraded systems, when A/C FLIGHT INFO is selected from the OVERLAYS (OVERLAY SELECTIONS, -108) menu, an aircraft symbol showing aircraft location is in view on the MFD when the GWX format is selected.

Figure 8-27 A/C Flight Info Overlay (AFD-3010E)



TPI1900_01

▼ SELECTIONS:

A/C FLIGHT INFO	The A/C FLIGHT INFO overlay consists of a magenta aircraft symbol that shows the location of the aircraft on the map. Also included in this overlay are the origin and destination airports, which are highlighted above. When software -105, -106, or -108 are installed, the aircraft current position can overlay on the weather image. When software -108 is installed, the aircraft current position can also overlay on the Winds Aloft image and Satellite image for situational awareness.

NOTE

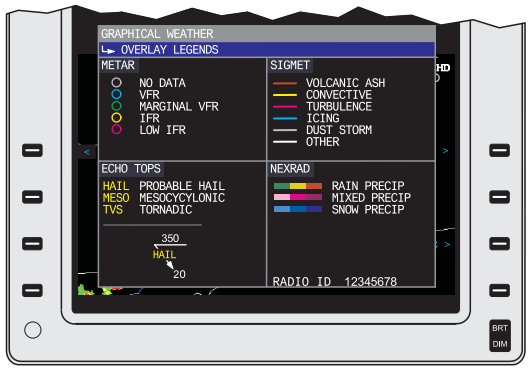
The symbol is yellow when a geographically-referenced chart is in view and GPS present position data is not.

GEO-REFERENCED
NO GPS PPOS DATA

TPH1376_01

OVERLAY LEGENDS (AFD-3010E)

Figure 8-28 Overlay Legends Page (AFD-3010E)



TPG5976_09

The OVERLAY LEGENDS page displays all the symbology used in the graphical weather overlays.

NOTE

The OVERLAY LEGENDS page does not show the orange lightning strike overlay icon (-108).

MAP DISPLAYS (AFD-3010E)

Two map display formats are available to the flight crew. The FMS Present Position (PPOS) Map is a heading-up present position moving map. The FMS Plan Map (PLAN) is a fixed stationary map oriented to true-north. Both map formats graphically depict the active FMS flight plan and FMS-supplied map background symbology (e.g., navaids, intersections, airports, etc.).

PPOS MAP (AFD-3010E)

Figure 8-29 Present Position Map (AFD-3010E) (-108)

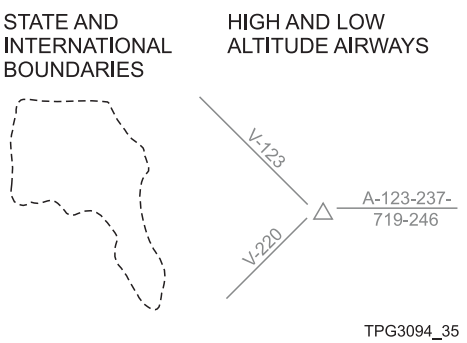
TPI1889_01

The FMS Present Position Map (PPOS Map) is a heading-up display centered on an aircraft symbol that graphically depicts the active FMS flight plan. FMS supplied map background symbology such as navaids, intersections, airports, and altitudes are available for display depending on the FMS type installed. The IFIS portion of the system adds E-Map features and symbology that includes Geopolitical Boundaries, Airspace, Airways, USA NEXRAD and Temporary Flight Restrictions

(TFRs) depending on the IFIS version installed. The MFD menu is selected with controls on the CCP.

▼ SELECTIONS:

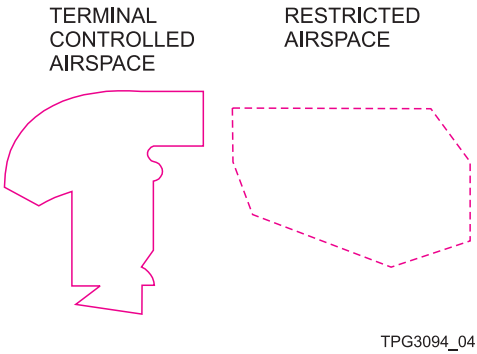
E-Map Symbology	The E-Map symbology include geopolitical boundaries, airspace, and airways. The E-Map symbology that is available on the PPOS Map is listed below: • First Order Administrative boundaries (defined as State/Province boundaries) are depicted using dotted grey lines for the U.S.A., Canada, Russia, China, and Australia. • International boundaries are depicted using dotted grey lines. • Airways are depicted using a series of straight grey lines from the start to the finish of each airway segment. A triangle symbol is placed at the end of each leg of an airway. The identifier for the airway shows in the middle of each segment of the airway line. The identifier does not show when the actual text length of the identifier is to great to be drawn in the middle of the segment.



- Rivers are depicted using dark blue solid lines.
- Lakes are depicted using a solid dark blue filled area.
- Coastlines/Oceans are depicted using a solid dark blue filled area.

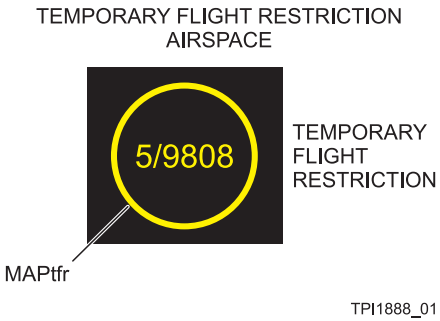
Controlled airspace that is depicted on the map includes Class B & C, CTA, and TMA/TCA airspace.

- Controlled airspace is depicted using solid magenta lines.
- Restricted airspace is depicted using dotted magenta lines.



Temporary Flight Restrictions (TFRs) (-108) are available below 100 NM E-Map range for flight crew situational awareness.

- TFR airspace is depicted using solid yellow lines and yellow letters and numbers.



Auto Map Declutter

Airspace, Airways, and geopolitical E-Map symbology is removed automatically based on the selected range as described below:

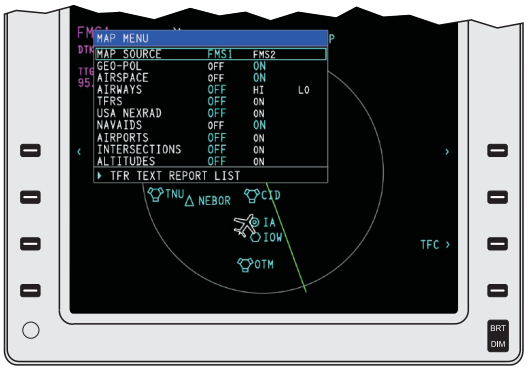
- Airways symbology is automatically removed when a range above 100 NM is selected.
- Airspace symbology is automatically removed when a range above 100 NM is selected.
- Temporary Flight Restriction (TFR) symbology is automatically removed when a range above 100 NM is selected (-108).
- Geopolitical symbology is automatically removed when ranges above 320 NM are selected.

Fault Messages

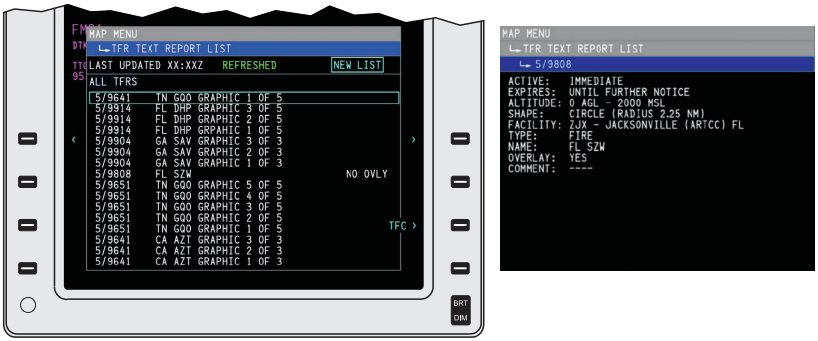
Faults that prevent the proper display of the E-Map overlays are identified with specific fault messages. The fault messages show in the lower center portion of the MFD. The E-Map symbology is removed when an E-Map fault message is in view. The E-Map fault messages are as follows:

- AIRSPACE FAULT
- AIRWAYS FAULT
- GEO-POL FAULT
- TFR FAULT (-108)
- NO AIRSPACE AVAILABLE
- NO AIRWAYS AVAILABLE
- NO GEO-POL AVAILABLE
- NO TFRS AVAILABLE (-108)
- PROCESSING REQUEST.

TFR TEXT REPORT LIST (AFD-3010) (-108)



TPI1895_01



TFR TEXT REPORT LIST

TPI1891_01

The Temporary Flight Restriction (TFR) (-108) graphical and textual information provides a complete picture of the airspace environment that can change on short notice. The additional airspace information is helpful when deviating from a planned flight path to avoid entering hazardous or restricted airspace. The TFR TEXT REPORT is accessed through the MAP MENU. The individual TFR selections are available to help determine restriction information for each TFR airspace.

TFR data is continuously transmitted every 12 minutes. The TFR list REFRESH indicator text changes from green to yellow on the TFR TEXT REPORT LIST page when the TFR data is more than 36 minutes old. The time stamp is dashed and the REFRESH indicator text is grey when no TFR data is stored by the File Server Unit (FSU).

NOTE

The message NO OVLY (no overlay) is displayed next to a TFR on the TFR TEXT REPORT LIST for TFRs with no graphical overlay. These TFRs have text information only.

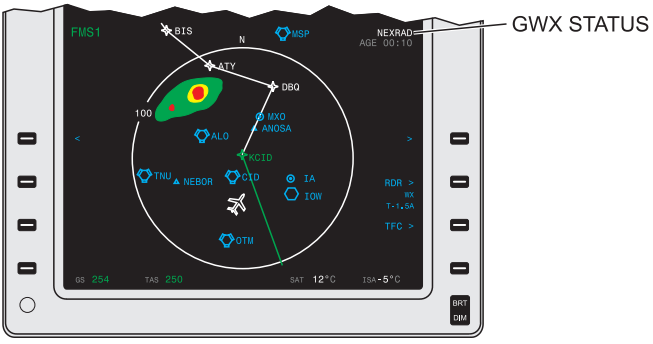
The TFR text report shows additional information about the selected TFR. The TFR text report contains TFR active times and TFR expiration information. Altitude constraints, type, name, and authorizing facility are also displayed. An overlay cue alerts the flight crew if the TFR has a graphical overlay depiction or not. The graphical overlay depiction is displayed on the PPOS and PLAN Maps.

When the File Server Unit (FSU) receives a new report list that is different than the stored report list while the TFR report text is displayed, the message ACKNOWLEDGE NEW REPORT is displayed in the TFR

report text menu title. Rotate the DATA knob or push the PUSH SELECT button on the CCP to remove the displayed report text and to return to the newly received text on the TFR TEXT REPORT LIST menu.

PLAN MAP (AFD-3010E)

Figure 8-30 Plan Map Format (AFD-3010E)



TPG3094_06

The FMS Plan Map is a fixed, true north-up stationary map that graphically depicts the active FMS flight plan and FMS-supplied background maps. FMS supplied map background symbology such as navaids, intersections, and airports are available for display via the CDU. The Plan Map is not a new format, but is modified to accommodate the Pro Line 21 Continuum IFIS. The IFIS portion of the system adds E-Maps and GWX to the Plan Map. E-Map symbology includes Geopolitical Boundaries, Airspace, and Airways (Temporary Flight Restriction (TFR) information is available when software -108 is installed). The GWX feature allows a USA NEXRAD precipitation image to show on the Plan Map. A menu available on the MFD allows selection of the E-Maps and GWX. The MFD menu is selected with controls on the CCP.

NOTE

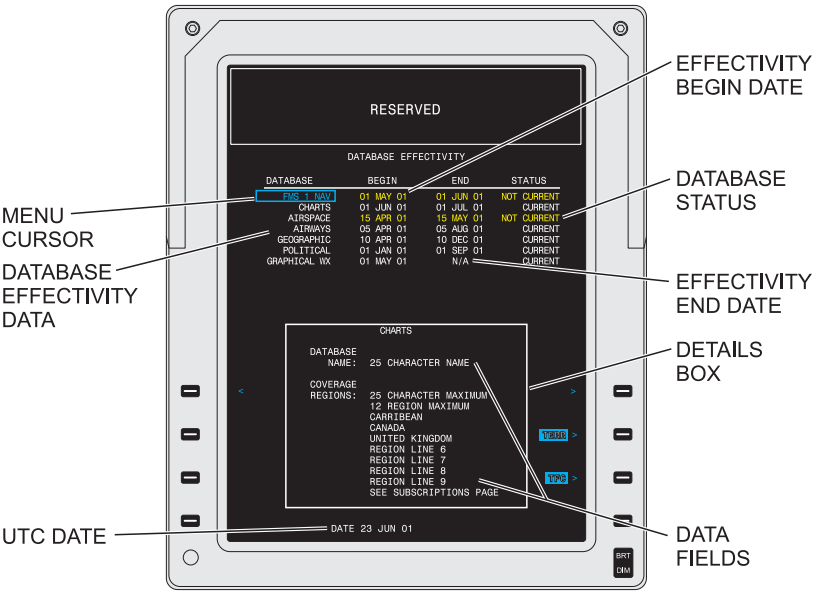
The CDU is used to enter flight plan information into the FMS, to control the display of FMS-supplied background map data, to send and receive text datalink messages. With the GWX-5000, the CDU is used to upload GWX images. These features are described in detail in the applicable FMS and CMU operator's guides.

▼ SELECTIONS:

GWX	The RDR line select key is used to select GWX to On or Off. When selected, GWX allows a USA NEXRAD image to show on the Plan Map.
GWX Status	The status of the GWX image shows on the MFD when the GWX overlay is active on the Plan Map. The status shows above the lower format line select key. The status annunciation shows as one of the items that follow (Refer to the MESSAGES AND ANNUNCIATORS chapter for detailed information): • NEXRAD AGE HH:MM (in white). The HH:MM readout is the age of the NEXRAD image in hours and minutes. • NEXRAD AGE HH:MM (in yellow). • NO USA NEXRAD AVAILABLE.
GWX Fault Messages	The fault messages that follow may be in view when the GWX overlay is active on the Plan Map: • — — — — (four dashes) • GWX FAULT.

DATABASE EFFECTIVITY PAGE (AFD-3010E)

Figure 8-31 Database Effectivity Page (AFD-3010E)



TPG3094_01

The Database Effectivity page provides the aircraft operator with a means to assess the currentness of the installed databases. A list of the installed databases shows on the Database Effectivity page. The list includes the name, begin date, end date, and status (current or not current) for enabled databases. The Database Effectivity page is also used to navigate between the installed databases and to provide specific information regarding the installed databases.

The MFD shows database information from the same n-side File Server Unit (FSU). In the event of a dual FSU installation, the left MFD shows data from the left FSU and the right MFD shows data from the right FSU.

NOTE

If UTC time is unavailable when the FSU initially powers-up, all databases are marked as expired. When UTC becomes valid (displayed on the bottom of the PFD) the database effectivity is checked accordingly.

▼ SELECTIONS:

Database List

The database list shows all databases that support enabled applications. The list shows below the DATABASE legend. The possible list items show in column one of the table that follows. The update time of the associated database shows in column two of the table:

FREQUENCY OF DATABASE UPDATES

Database	Update Periods
FMS NAV database	28 days
CHARTS database	14 days
AIRSPACE database	28 days
AIRWAYS database	28 days
GEOGRAPHIC database	As required
POLITICAL database	As required
GRAPHICAL WX databases	As required

NOTE

When more than one FMS is installed, the FMS NAV database legend includes the FMS identifier, e.g., FMS1 NAV. When one FMS is installed, the FMS legend is FMS NAV.

Database Status

The database status messages are in view on the Database Effectivity page.

- CURRENT
- NOT CURRENT.

NOTE

The associated database title, begin date, and end date also show in yellow when the database is NOT CURRENT.

Details Window

The database details window provides additional information regarding the selected database. Various databases provide different levels of detail information in the detail window. Most provide regional coverage information. Other databases provide additional information like subscriber name, etc.

Messages

The text messages that follow are in view on the Database Effectivity page:

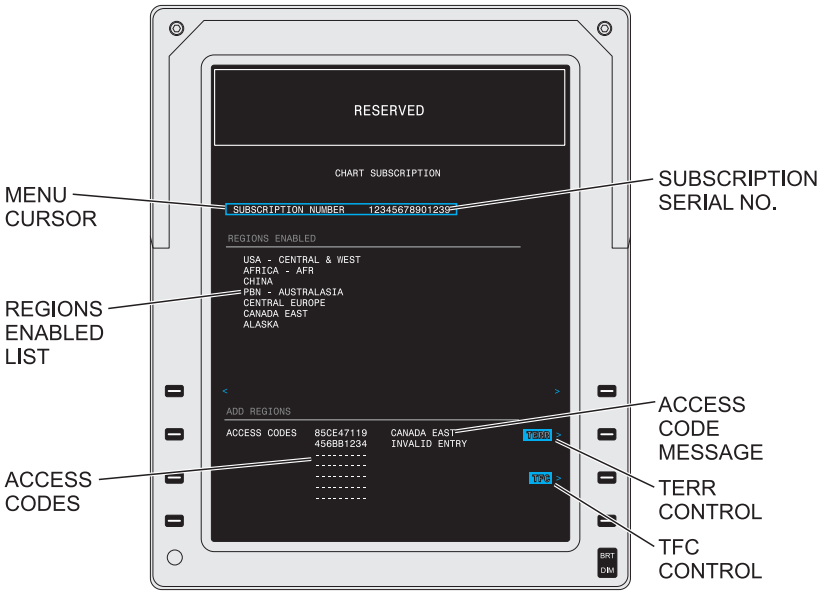
- SEE SUBSCRIPTIONS PAGE
- NO REGIONS AVAILABLE FOR CURRENT SUBSCRIPTION
- CHECK DATABASE STATUS
- PROCESSING REQUEST
- DATABASE EFFECTIVITY FAULT.

UTC Date

The current date shows at the bottom of the Database Effectivity page when the master date is available from the avionics system. When the current date is failed or missing, dashes show in place of the UTC data.

CHART SUBSCRIPTION PAGE (AFD-3010E)

Figure 8-32 Chart Subscription Page (AFD-3010E)



TPG3094_02

The Chart Subscription page allows the flight crew or maintenance personnel to enter information to change the chart region coverage of the database. The Chart Subscription page contains a subscription number data entry field, a list of enabled regions, and an add regions data entry field. Regions are added to the list by entering temporary access codes. Up to seven temporary access codes can be entered. Both the subscription number and access codes are obtained from Jeppesen. The Chart Subscription page can only be modified on the ground.

▼ SELECTIONS:

Regions Enabled List	When the subscription serial number has been entered, a list of the enabled regions associated with the subscription serial number shows below the subscription serial number.

Regions Enabled Messages

The text messages that follow are in view in the regions enabled list:

- NO REGIONS AVAILABLE FOR CURRENT SUBSCRIPTION
- PROCESSING REQUEST
- SUBSCRIPTION FAULT.

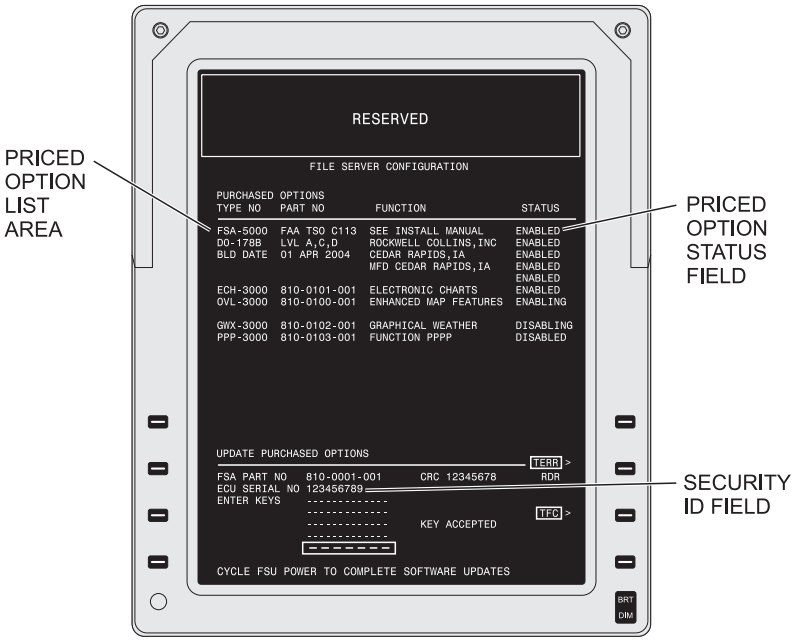
Chart Subscription Messages

The text messages that follow are in view in the ADD REGIONS field:

- ACCEPTED KEY
- INVALID ENTRY
- PROCESSING
- CODE FAULT.

FILE SERVER CONFIGURATION PAGE (AFD-3010E)

Figure 8-33 File Server Configuration Page (AFD-3010E)



TPH1153_01

The File Server Configuration format provides information on the system Priced Options available to the customer. Status information indicates those options that are currently enabled, or disabled, as well as the status of those options that the user is in the process of enabling or disabling. The enabling and disabling function is managed through the input of Encrypted Application Keys (EAKs). The Encrypted Application Keys provide the information necessary to allow the system to unlock the associated application software that is already resident in the system. An Encrypted Application Key is an alphanumeric string that is generated to unlock an application on the single aircraft for which it was purchased. An Encrypted Application Key for one aircraft will not work on another aircraft and is rejected.

- The Priced Option list consists for each priced option information that follows:
  - Priced option type number
  - Priced option part number
  - Priced option description.
- Priced Option Status Field Messages:
  - Enabled
  - Disabled
  - Enabling
  - Disabling
  - Error.
- EAK Data Entry Status Field Messages:
  - Key Accepted
  - Invalid Key
  - Processing
  - Config Fault.

MDC DIAGNOSTICS (AFD-3010E)

TPG5858_02

The Maintenance Diagnostic Computer (MDC) continuously monitors avionics units and reports faults when appropriate. The MDC Diagnostics pages provides access to the MDC fault codes to conduct troubleshooting operations.

The CURRENT FAULTS page gives information on current fault status. The AIRCRAFT HISTORY page provides fault history and a summary of the various legs of the flight. The MDC SETUP page provides setup control of some MDC parameters. Examples include the aircraft identification code and the aircraft clock, configuration control, and the file load function that allows files from a database, including user checklists, to be loaded from a disk. The REPORT DOWNLOAD page provides the ability to download MDC report files to a diskette. There is also a separate Flight Control System (FCS) diagnostic that allows troubleshooting of autopilot and yaw damper failures.

Refer to the Pro Line 21 Continuum Retrofit Avionics System with IFIS-5000 Diagnostic Guide (CPN 523-0806300) for detailed information on the MDC Diagnostic feature.

CHECKLISTS (AFD-3010E)

Figure 8-34 Checklists (AFD-3010E)

TPG5858_05

The checklist system provides a display of user-selected checklist data above the navigation format. There is a preamble page, which requires flight crew acknowledgement, and up to four checklist menus available. The potential checklist menus are NORMAL, ABNORMAL, EMERGENCY, and USER.

Checklists are loaded via the CPAS-3000 Data Loader or the DBU-5000 Data Base Unit. The NORMAL, ABNORMAL, EMERGENCY, and USER checklists are created and verified by each individual aircraft operator. Checklists are created by the operator on a personal computer using the CHECKLIST EDITOR INSTRUCTIONS (CPN 523-0778174). Capability to edit or define the checklists onboard the aircraft is not provided.

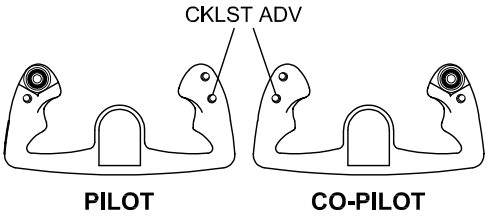
▼ SELECTIONS:

Checklist Items	The statements that follow apply to completing checklists: • When the item at the cursor position that was checked was the last unchecked item on the page, and a subsequent page within the selected checklist title contains an unchecked item, then the next page that contains an unchecked item is in view, with the cursor positioned at the first unchecked item. • When the item at the cursor position that was checked is on the last page of a checklist, and a previous page within the checklist title contains an unchecked (skipped) item, then the page containing the first skipped item is in view with the cursor positioned at the first skipped item. • When the current item is the last item in the checklist, but there are other unchecked items within the checklist, then the unchecked item that is closest to the top of the checklist title becomes the current checklist item and the cursor is placed next to it.

- CHECKLIST COMPLETE shows as the last item on the checklist page with the exceptions that follow:
  - If the completed checklist was in the NORMAL CHECKLIST MENU, the CHECKLIST COMPLETE selection is replaced by NEXT NORMAL CHECKLIST. Selection takes the user to the next checklist in the NORMAL CHECKLIST MENU.
  - If the completed checklist was the last item of the NORMAL CHECKLIST MENU, or was in the ABNORMAL CHECKLIST MENU, EMERGENCY CHECKLIST MENU, or USER CHECKLIST MENU, the CHECKLIST COMPLETE selection is replaced by RETURN TO CKLST MENU.
- When all items within the checklist title have been completed, then the last page of the checklist shows with checked items in green and the cursor positioned on the white CHECKLIST COMPLETE (or similar) selection as the last item on the page.
- While the Checklist is in view, push the ESC button on the CCP to exit the Checklist without completing it.
- When the Checklist is exited using the FORMAT line select key after a title has been in view, the system retains which title was in view, which items have been checked, and which items have been skipped for display when the Checklist format is re-selected.

NOTE

An optional yoke mounted discrete switch allows for a Line Advance function for the Checklist feature. Pushing the remote yoke CKLST ADV switch is functionally like pressing ENTER while a Checklist is displayed.



TPH6121_01

E-CHARTS (AFD-5220E)

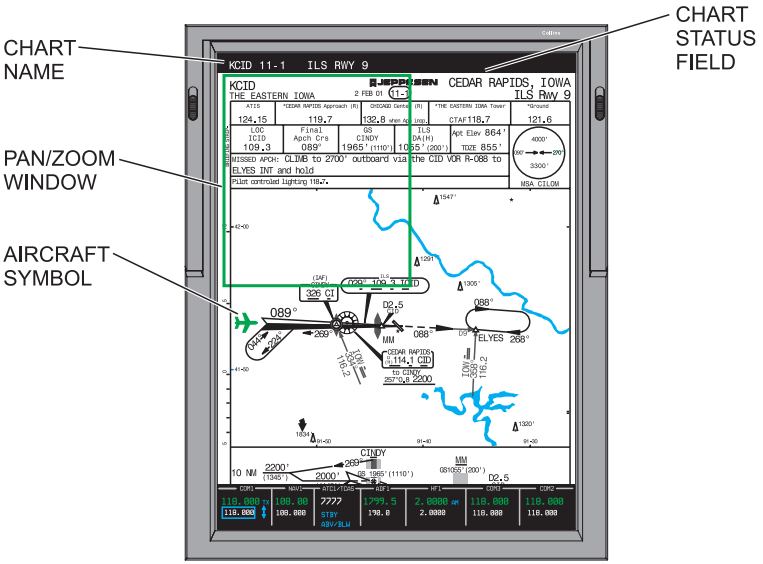
The E-Chart format provides the ability to show an electronic version of a conventional paper instrument chart on the MFD. The E-Charts are linked automatically (Chart Link) by the FMS when a flight plan is entered and can also be selected manually by the pilot. The available charts are listed on the Chart Main Index. Controls for chart selection are on the CCP. When aircraft position data is available, a moving aircraft symbol shows on E-Charts that are geographic-referenced. A non-geographic-referenced chart has a yellow or green aircraft symbol with a circle and slash on the top right hand corner of the chart.

NOTE

The use of E-Charts with the geographic-referenced aircraft symbol does not relieve the pilot of responsibility for navigation.

DISPLAY CHART (AFD-5220E)

Figure 8-35 Display Chart Format (AFD-5220E)



TPH5382_01

The selected Jeppesen E-Chart shows when selected by the flight crew. Controls on the CCP are used to select a chart for display, pan around the chart, zoom in or out on the chart, and change the orientation of the chart.

A moving aircraft symbol shows on the chart when the chart is geographically-referenced, as determined by the Jeppesen database and the aircraft position is within the geographically-referenced part of the chart.

▼ SELECTIONS:

Chart Name	The name of the chart in view shows immediately above the chart. The chart name includes the airport ID, chart index number and procedure ID.
Aircraft Symbol	A moving aircraft symbol shows on the chart when the chart is geographically-referenced, as determined by the Jeppesen database and the aircraft position is within the geographically-referenced part of the chart. The moving aircraft symbol shows the current aircraft position latitude and longitude as determined by the same side Global Positioning System (GPS). The nose of the aircraft symbol is oriented toward the aircraft true heading. When the same side GPS data is absent or invalid, the opposite side GPS is used.

NOTE

GPS is constantly calculating position and is accurate within a window. The aircraft symbol is positioned accordingly on the chart. The result may be that the aircraft symbol may move slightly, which is the most noticeable on the airport charts when the aircraft is not moving.

A crossed-out aircraft symbol shows above the chart to indicate when the aircraft position cannot be displayed on the chart. The crossed-out aircraft symbol shows above and to the right of the chart name. The symbol is yellow when a geographically-referenced chart is in view and GPS present position data is not available. The symbol is a green aircraft with a white circle/slash when the chart in view is not geographically-referenced.

GEO-REFERENCED
NO GPS PPOS DATA

NOT GEO-REFERENCED

TPH5382_57

Chart Cycle Messages

Early/late cycle chart messages show in the chart status field to the right of the chart name. The message that shows is one of the items that follow, in order of priority:

- OUT OF DATE
- CHECK DATE.

NOTE

The CHECK DATE message may appear for a short period of time while the GPS tries to acquire satellites. When satellites are not in view (e.g., while the aircraft is in a hangar), the CHECK DATE message may persist and the system is unable to automatically check for database effectivity.

Chart Orientation

When a new chart is selected, the orientation is set to its default, portrait or landscape, as determined from the Jeppesen database. The first push of the orientation button, located below CHART button on the CCP, rotates the chart 90 degrees. The second push rotates the chart back to its original orientation.

Chart Scaling

Operate the joystick to move the pan/zoom window to the area of the chart that the pilot wishes to view. Push the ZOOM + button to expand the region of the chart enclosed within the pan indicator to fill the chart format. Push the ZOOM – button to return the chart to normal scaling.

Chart Panning

When zoomed in, operate the joystick to move the desired area of the chart into view on the MFD. Moving the joystick in the horizontal moves the pan/zoom window horizontally on the chart. Moving the joystick in the vertical axis moves the pan/zoom window vertically.

TECH DETAIL

The last viewed orientation, zoom, and pan positions are recalled and displayed the next time each chart is in view.

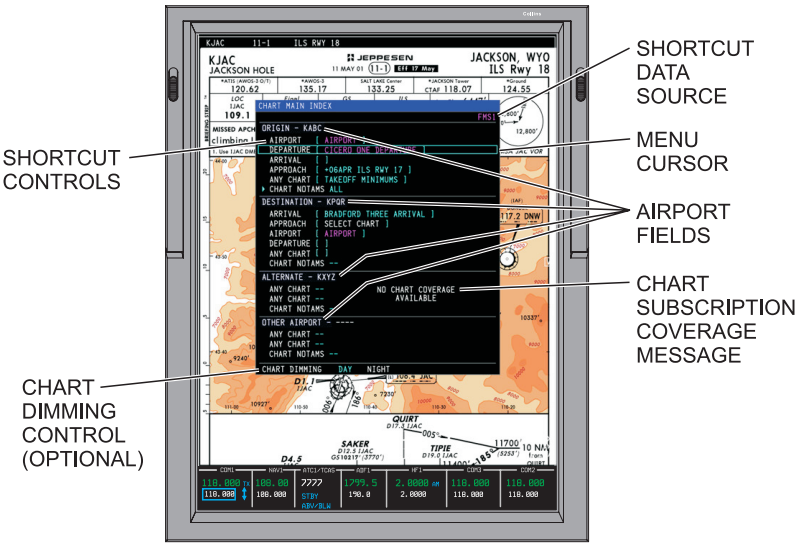
Fault Messages

The fault messages that follow may be in view on the MFD when an E-Chart is in view:

- OUT OF DATE
- CHECK DATE
- CHART FAULT
- NO CHART AVAILABLE.

CHART MAIN INDEX (AFD-5220E)

Figure 8-36 Chart Main Index (AFD-5220E)



TPH5382_02

The Chart Main Index shows the list of shortcuts to the charts needed for the procedures associated with the origin, destination, and alternate airport. Selection of one of these shortcuts causes the associated chart to show. The origin, destination, and alternate airport entries are supplied by the FMS when a compatible FMS is installed and a flight plan is entered. The Other Airport entry is always entered by the pilot on this menu.

NOTE

The origin, destination, and alternate airport entries are entered by the pilot when a compatible FMS is not installed.

Controls on the CCP are used for data entry. Data entry mode is used to enter airport IDs. An optional chart dimming control is provided at the bottom of the Chart Main Index.

▼ SELECTIONS:

Airport Fields	When a compatible FMS is installed, the ICAO identifier (ID) of the origin, destination, alternate, and one other airport shows next to the associated headers (e.g., ORIGIN – KCID). The airport IDs are supplied by the FMS and based on the active flight plan. The ICAO identifier of the other airport always shows as a data entry field next to the header. When a compatible FMS is not installed, data entry fields show next to all of the airport fields. The data entry fields allow the pilot to enter the desired airport.
Shortcut Controls	Shortcut controls show below the origin, destination, alternate, and other airport fields/airport IDs on the Chart Main Index. The shortcut controls identify the selected chart and provide a quick means of selecting the indicated chart. • ORIGIN — Controls for the AIRPORT, DEPARTURE, ARRIVAL, APPROACH, ANY CHART and CHART NOTAMS ALL shortcuts show below the ORIGIN header and airport ID. • DESTINATION — Controls for the ARRIVAL, APPROACH, AIRPORT, DEPARTURE, ANY CHART and CHART NOTAMS ALL shortcuts show below the DESTINATION header and airport ID. • ALTERNATE — Controls for two ANY CHART shortcuts and one CHART NOTAMS ALL shortcut show below the ALTERNATE header and airport ID.

- OTHER AIRPORT — Controls for two ANY CHART shortcuts and one CHART NOTAMS ALL shortcut show below the OTHER AIRPORT header and airport ID.

Shortcut Names

The shortcut name shows next to the associated shortcut control when a chart has been selected automatically by the FMS or manually by the pilot. The shortcut naming convention is as follows:

- When the chart has been selected automatically by the FMS, the shortcut name is the name of the chart. The shortcut name shows in magenta.
- When the FMS has not found a matching procedure or more than one matching procedure has been found, the shortcut name is SELECT CHART. The shortcut name shows in white.
- When the chart has been selected by the pilot, the shortcut name is the name of the chart. The shortcut name shows in cyan.

Shortcut Data Source

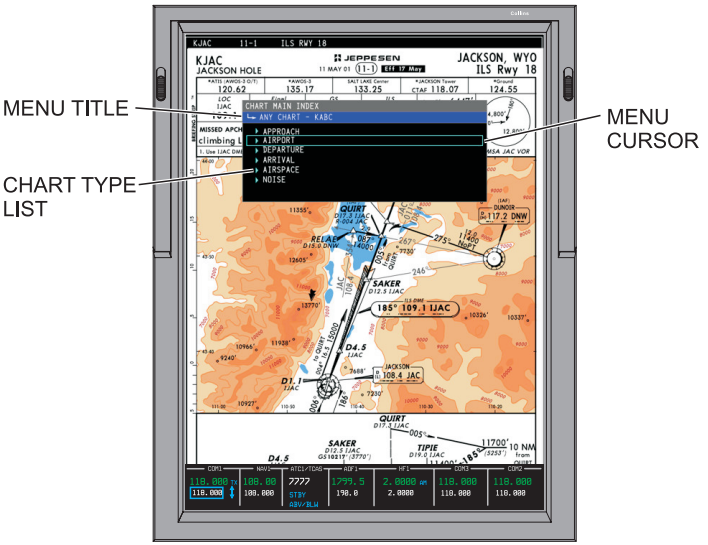
The data source for the shortcut shows in the menu status field on the Chart Main Index. The menu status field is located in the top right corner of the Chart Main Index. The data source message is one of the items that follow:

- FMSn (e.g., FMS1 or FMS2) shows in magenta when the selected map source is valid and an active flight plan exists.
- FMSn NO DATA AVAILABLE (e.g., FMS1 or FMS2) shows in white when the selected map source is invalid.

	• CHART PRESETS shows in white when a non-compatible FMS is installed.
NO CHART COVERAGE AVAILABLE Message	When the origin, destination, or alternate airports are not covered by the regions contained within the current chart subscription, the message NO CHART COVERAGE AVAILABLE shows for that airport. The message shows in white to the right of the associated airport header (e.g., origin, destination, alternate, or other airport).
Data Entry Field	Data entry mode is used to enter airport IDs for the airport search function.
Chart Dimming Control (optional)	An optional chart dimming control is provided at the bottom of the Chart Main Index, which allows the pilot to select the Day or Night color.

CHART TYPE MENU (AFD-5220E)

Figure 8-37 Chart Type Menu (AFD-5220E)

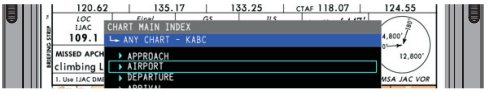


TPH5382_03

The Chart Type menu is accessed via the ANY CHART selection on the Chart Main Index. The Chart Type menu shows a list of the chart types available for the selected airport. Selection of an item from the list causes the Chart List to come into view. The Chart List shows a list of the charts that are available of the selected type (e.g., Approach) for the selected airport.

▼ SELECTIONS:

Menu Title	The menu title shows below the CHART MAIN INDEX header at the top of the menu. The menu title allows the user to know where they are in the menu tree. The menu title shows as ANY CHART followed by the airport ID (e.g., ANY CHART KABC). The airport ID identifies the selected airport.



TPH5382_04

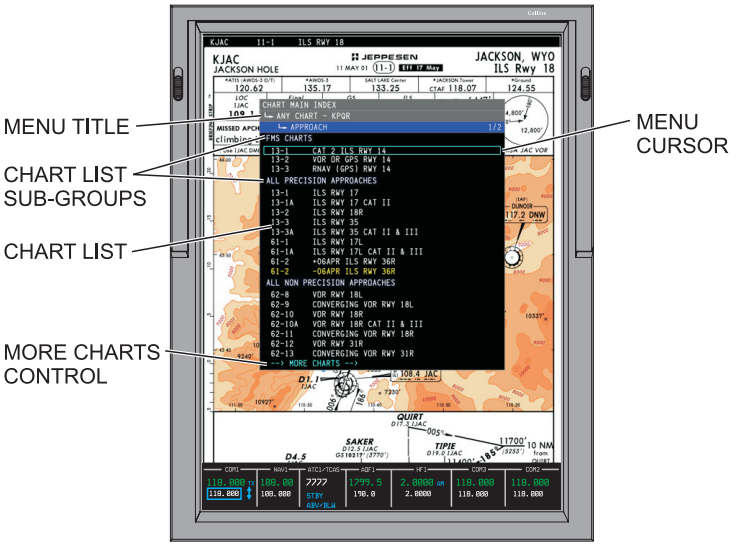
Chart Type List

A list of the chart types that are available for the selected airport shows below the airport ID. The possible chart types are as follows:

- Approach
- Airport
- Departure
- Arrival
- Airspace
- Noise.

CHART LIST (AFD-5220E)

Figure 8-38 Chart List (AFD-5220E)

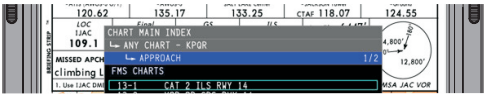


TPH5382_05

The Chart List is accessed via the Display Chart or the Chart Main Index or the Chart Type menus. The Chart List shows a list of charts of the selected type (e.g., APPROACH) for the selected airport. When a chart is selected via the Display Chart method, the newly selected chart comes into view on the MFD. When a chart is selected, the associated shortcut on the Chart Main Index is updated to the new selection.

▼ SELECTIONS:

Menu Title	The menu title shows below the CHART MAIN INDEX header at the top of the menu. The menu title allows the user to know where they are in the menu tree. The menu title shows as ANY CHART followed by the airport ID. The airport ID identifies the selected airport.



TPH5382_06

Chart List Sub-Groups

The charts that show on the Chart List are listed in order of their sub-groups. The sub-groups, in order, are as follows:

1. The sub-group FMS CHARTS shows when the FMS flight plan includes a procedure that matches the type of Chart List in view.
2. The sub-group ALL PRECISION APPROACHES shows when the chart type is APPROACH and at least one precision approach is available for the selected airport.
3. The sub-group ALL NON-PRECISION APPROACHES shows when the chart type is APPROACH and at least one non-precision approach is available for the selected airport.
4. The sub-group ALL plus the chart type (e.g., ALL ARRIVALS) shows when the chart type is ANY CHART.

Chart List

The charts are listed below their sub-group in order of their index numbers, with the lowest index number at the top of the menu.

Chart Names

The chart names show to the right of the chart index numbers on the chart list. The chart name for any current chart is the procedure ID (e.g., ILS RWY 9).

Chart Updates

Jeppesen allows for charts to be updated midway through the effective dates of a database. Under these conditions, the database contains additional charts that become effective on a given date. A chart in the list shows in white when the effectivity date indicates that it is a current chart. An item in the list shows in yellow when its effectivity date indicates that it is not current. A chart is considered not current when one of the items that follow occurs:

- There is a new chart and its effectivity date has not yet occurred.
- The chart is to be deleted and its effectivity date has passed.
- The chart is the early cycle of a mid-cycle revision and the current date/time is the late cycle of the database.
- The chart is the late cycle of a mid-cycle revision and the current date/time is the early cycle of the database.

TECH DETAIL

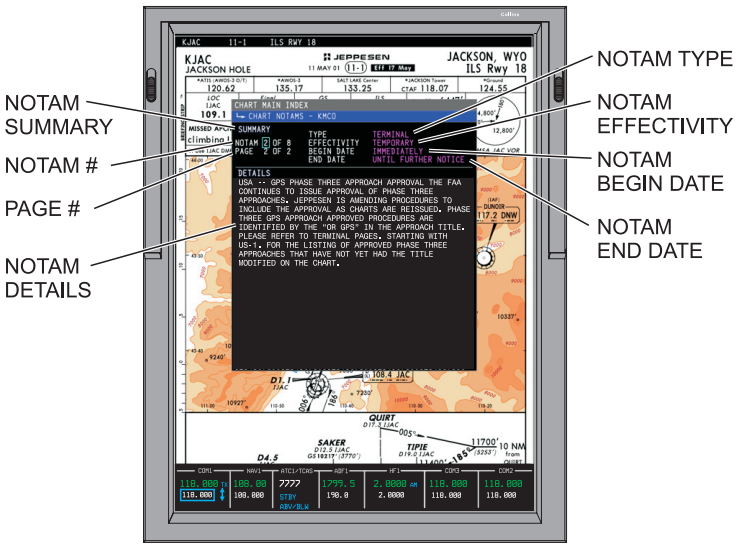
The switch-over time for Jeppesen E-Charts is 09:01 Coordinated Universal Time (UTC). When the current UTC is earlier than 09:01 of the chart begin date, or later than 09:01 of the chart end date, the chart is considered noncurrent.

A chart that is revised mid-cycle is identified as follows:

- A chart name with a minus sign and a date preceding the procedure ID (e.g., -06APR ILS RWY 36R) is effective up to the date displayed.
- A chart name with a plus symbol and a date preceding the procedure ID (e.g., +06APR ILS RWY 36R) is effective on and after the date displayed.

NOTAMS MENU (AFD-5220E)

Figure 8-39 NOTAMS Menu (AFD-5220E)



TPH5382_07

The Chart NOTAMS menu shows the chart NOTAMS available for the selected airport. The page is broken into two fields, the NOTAM summary and NOTAM details. When more than one NOTAM is available for the selected airport, the selected NOTAM and total number of NOTAMs shows in the summary field. The selected NOTAM readout is also a data entry field that allows the user to select another NOTAM for viewing. The NOTAM type, effectivity, begin date and end date show

in the summery field. The NOTAM text as defined in the Jeppesen charts database shows in the details field.

NOTE

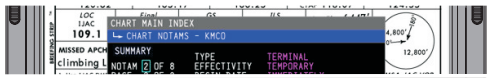
When there are temporary changes to enroute or terminal charts, these changes are included in Jeppesen chart NOTAMs. The chart NOTAMs are sometimes used for last-minute changes that missed the cutoff dates for changes. These NOTAMs are usually produced every two weeks. It is important to note that the Chart NOTAMs only highlight changes to the Jeppesen charts and do not substitute for the NOTAMs issued by the Federal Aviation Administration (FAA).

NOTE

New NOTAMs can be issued at any time by the FAA. These new NOTAMs may not be in the database installed in the FSU until the next database update. Prior to departure, always ensure that the latest NOTAMs are available either by requesting them using the on-board Datalink or as hard copy.

▼ SELECTIONS:

Menu Title	The Menu title shows below the CHART MAIN INDEX header at the top of the menu. The menu title allows the user to know where they are in the menu tree. The menu title shows as: CHART NOTAMS followed by the airport ID. The airport ID identifies the selected airport.
NOTAM Type	The NOTAM Type, either TERMINAL or GENERAL, shows next to the TYPE header in the Summary field.



TPH5555_22

NOTAM Effectivity	The NOTAM effectivity shows as TEMPORARY or PERMANENT as defined in the Jeppesen charts database. The NOTAM effectivity shows next to the EFFECTIVITY header in the Summary field.
NOTAM Begin Date	The begin date, as defined in the Jeppesen charts database, shows next to the BEGIN DATE header in the Summary field. The begin date shows as one of the items that follow: • IMMEDIATELY • NO BEGIN DATE • DD MMM YY (specified date).
NOTAM End Date	The end date, as defined in the Jeppesen charts database, shows next to the END DATE header in the Summary field. A text message or date shows for the end as one of the items that follow: • UNTIL FURTHER NOTICE • NO END DATE • DD MMM YY (specified date).
NOTAM #	When more than one NOTAM is available for the selected airport, the number of available NOTAMs shows next to the NOTAM legend. The first number is the selected NOTAM and the second number is the total number of NOTAMS for this airport. The NOTAMS are listed in the order that follows: 1. By type: Terminal NOTAMS first, then General. 2. By effectivity: Permanent NOTAMS first, then Temporary.

3. By begin date: IMMEDIATELY first, then by date, earliest to latest.

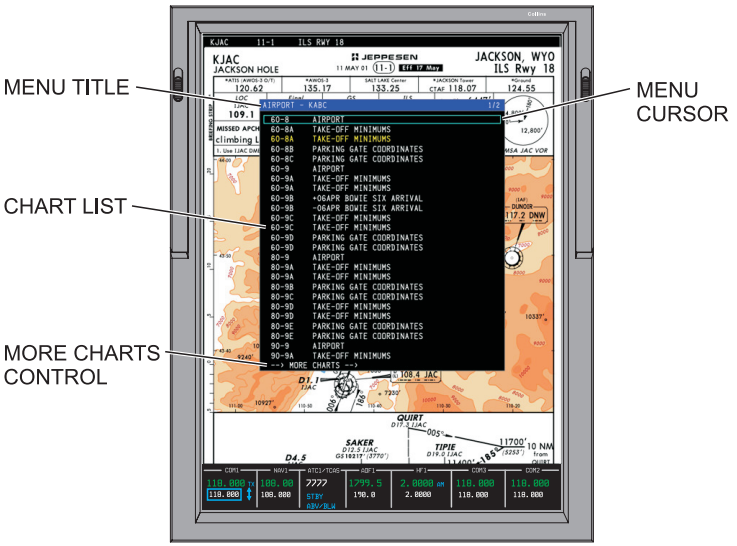
NOTAM Messages

The messages that follow may be in view on the MFD when the NOTAMs menu is active:

- PROCESSING REQUEST
- NOTAM DATA FAULT.

AVAILABLE CHARTS MENU (AFD-5220E)

Figure 8-40 Available Charts Menu (AFD-5220E)



TPH5382_08

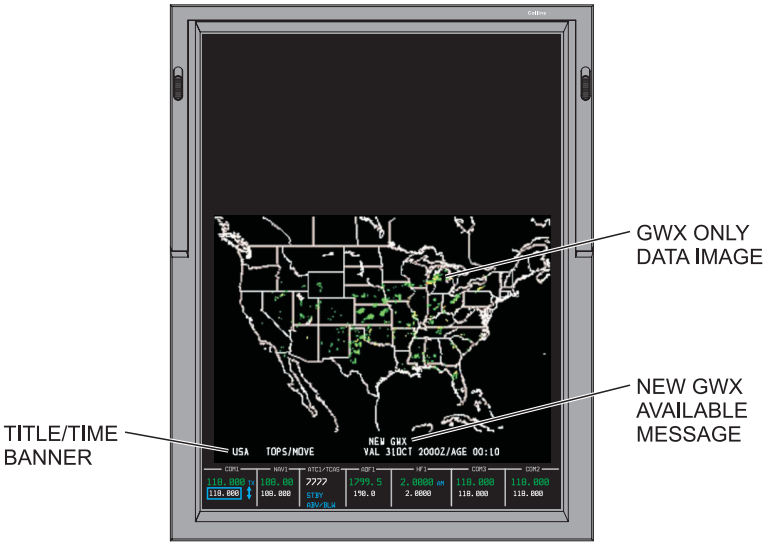
The Available Charts Menu is displayed to show the list of charts of the selected type for the selected airport.

▼ SELECTIONS:

Menu Title	The Menu title shows below the CHART MAIN INDEX header at the top of the menu. The menu title allows the user to know where they are in the menu tree. The menu title shows as: AIRPORT followed by the airport ID. The airport ID identifies the selected airport.
Chart List	The Chart List shows charts that are available for the chart type and airport.

GRAPHICAL WEATHER (GWX-5000) (AFD-5220E)

Figure 8-41 Graphical Weather Format (AFD-5220E)



The Graphical Weather (GWX) format provides the ability to show one GWX image at a time on the MFD. New GWX images are requested by the pilot via controls on the CDU. Refer to the Rockwell Collins Corporate Datalink System CMU-4000/RIU-40X0 Operator Guide, CPN 523-0790499, for detailed information on using the CDU to request and view GWX images.

The GWX images are uplinked via VHF Datalink system from the Information Service Provider (Universal Weather). A list of saved and available GWX images shows on the MFD when requested by the pilot. The pilot selects the desired GWX image to show on the MFD with controls on the CCP.

The GWX image can be a forecast or an observation image. Forecast images include WINDS ALOFT, ICING, and TURBULENCE. Observation images include NEXRAD, Tops/Movement, and Weather (WX) DEPICTION. Each Datalinked GWX image is paired with a corresponding geopolitical background image. A title/time banner shows for each GWX image.

NOTE

Datalinked GWX is for informational purposes and should not be used for tactical decision making. By its very nature, Datalinked GWX is delayed from real time weather conditions.

NOTE

The United States NEXRAD precipitation image is the only image available as an overlay on the Plan Map format. Refer to the Plan Map section for more information.

NOTE

Occasionally, the National Weather Service incorrectly identifies test data that exhibits unrealistic weather patterns. Examples are: 1) donut-shaped pattern, 2) pie-slice-shaped pattern, 3) circle-shaped pattern, and 4) bulls-eye-shaped pattern. When an image of this nature is encountered and you suspect the data is in error, wait until the next image update cycle, request a new image, and verify the test pattern is removed.

GWX IMAGE LIST (AFD-5220E)

Figure 8-42 GWX Image List (AFD-5220E)

TPH5382_09

For each GWX image on the list, a region abbreviation, name of the image, date, month, and time of the image show. The date, month, and time of the next available image for each image also shows for each GWX item on the list. New graphical weather images can be added to the list via the CDU REQ GWX page. The newest image to be received shows at the top of the list. The GWX region name and region abbreviations are as follows:

GWX Region Abbreviations

GWX Abbreviation	Region Description
AFR	Africa
AUS	Australia
EUR	Europe
INDIA	India
N-AM	North America
N-ATL	North Atlantic
N-PAC	North Pacific
S-AM	South America
S-PAC	South Pacific
W-PAC	West Pacific
UK	United Kingdom

GWX Abbreviation	Region Description
NC-US	North Central United States
NE-US	Northeast United States
NW-US	Northwest United States
SC-US	South Central United States
SE-US	Southeast United States
SW-US	Southwest United States
USA	United States

NOTE

The list holds a maximum of 50 items. The oldest item is removed from the list as new items are added.

▼ SELECTIONS:

Graphical Images

The corresponding graphical weather image is in view on the MFD when the image is selected from the GWX Image list. An example image of each graphical weather image type and an accompanying description are as follows:

- NEXRAD — Refer to the figure on page 8-112
- TOPS/MOVEMENT — Refer to the figure on page 8-113
- WX DEPICTION — Refer to the figure on page 8-115
- WINDS ALOFT — Refer to the figure on page 8-117
- TURBULENCE — Refer to the figure on page 8-119
- ICING — Refer to the figure on page 8-120.

New Images

New graphical weather images can be added to the list via the CDU. When the system receives a new (uploaded) image, the text message NEW GWX shows on the MFD. The message is cleared by entry into the image list. The CDU also displays the message GWX RECEIVED. The newest image to be received shows at the top of the list. Refer to the applicable CMU Operator Guide for details on uploading images and adding to the image list.

NOTE

As long as images in the entry list remain unviewed, the message GWX RECEIVED continues to show on the CDU.

New images are available according to the schedule that follows:

New Image Schedules

Image Type	Schedule
NEXRAD	Every 6 minutes.
Echo Tops/ Movement	Every 30 minutes (Typically available at 10 and 40 minutes past the hour).
WX Depiction	Every 60 minutes (Typically available at 20 minutes past the hour).
Winds Aloft	0Z, 6Z, 12Z, 18Z, 30 hr, 36 hr, 42 hr, 48 hr, 72 hr.
Turbulence	0Z, 6Z, 12Z, 18Z, 30 hr, 36 hr, 42 hr, 48 hr, 72 hr.
Icing	0Z, 6Z, 12Z, 18Z, 30 hr, 36 hr, 42 hr, 48 hr, 72 hr.

TECH DETAIL

The Zulu (Z) forecast times refer to that time in the future for weather forecasts. Therefore, if the current time is 15Z, an 18Z forecast is for 18Z today and a 12Z forecast is for 12Z tomorrow. The hour HR forecast times refer to the number of hours since the last model run for weather forecasts. The model runs are completed at 0Z and 12Z each day. Therefore, if the current time is 15Z, a 30HR forecast is for 18Z tomorrow (e.g., 30-hours from the last model run, which is 12Z today).

Retention of Images

NEXRAD, forecast, and observation images are retained as follows:

- For each NEXRAD region, up to the five most current unique images are retained.
- When not overwritten by a newer image, images are purged at the time intervals that follow when on the ground:

Image Purge Schedules

IMAGE TYPE	**PURGE TIME**
NEXRAD	Valid time + 90 minutes
WX DEPICTION	Valid time + 90 minutes
TOPS/MOVEMENT	Valid time + 90 minutes
WINDS ALOFT	Valid time + 9 hours
ICING	Valid time + 9 hours
TURBULENCE	Valid time + 9 hours

Old Images

The menu item shows in yellow within a yellow box when the image is old. Images are considered old when the current time exceeds the product next available time by more than 30-minutes.

Geopolitical Background Image

Each Datalinked GWX image is paired with a corresponding geopolitical background image. The geopolitical background image shows geographic and political borders. The borders show in white with a black background.

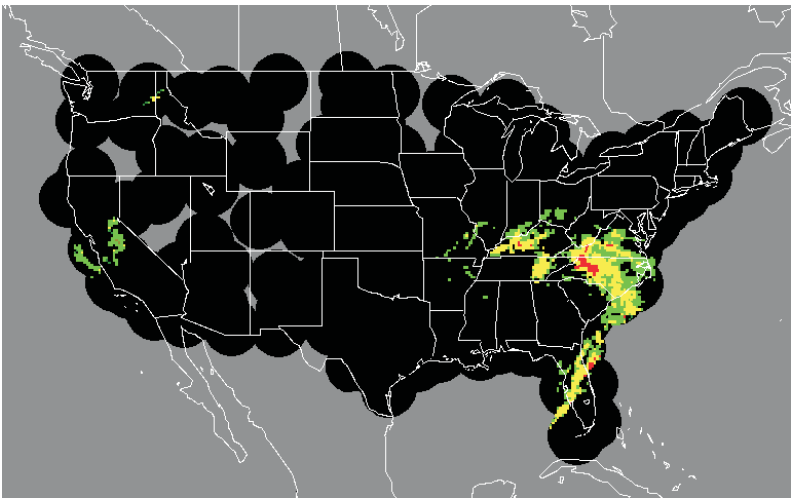
Title/Time Banner

A title/time banner shows along the bottom of the display when a GWX image is in view. Two different formats are available on the title/time banner, one for a forecast image and one for an observation image.

- For a forecast image, the region name, image name, valid date/month/time of the image, and the issue day/month/time of the image show on the title/time banner. Forecasts include Winds Aloft, Icing, and Turbulence images.
- For an observation image, the region name (e.g., USA), image name (e.g., NEXRAD), and the valid day/month/time, and age of the image in hours and minutes show on the title/time banner. Observations include NEXRAD, Tops & Movement, and Weather Depiction images.

GRAPHICAL WEATHER IMAGES (AFD-5220E)

Figure 8-43 NEXRAD Image (AFD-5220E)



NEXRAD

TPG3094_23

A NEXRAD image is in view on the upper or lower display area of the MFD when selected from the GWX image list and the GWX format is active.

NOTE

Occasionally, the National Weather Service incorrectly identifies test data that exhibits unrealistic weather patterns. Examples are: 1) donut-shaped pattern, 2) pie-slice-shaped pattern, 3) circle-shaped pattern, and 4) bulls-eye-shaped pattern. When an image of this nature is encountered and you suspect the data is in error, wait until the next image update cycle, request a new image, and verify the test pattern is removed.

▼ SELECTIONS:

NEXRAD Image Colors	The table that follows lists the colors used on NEXRAD images to represent areas of precipitation and the relative intensity:

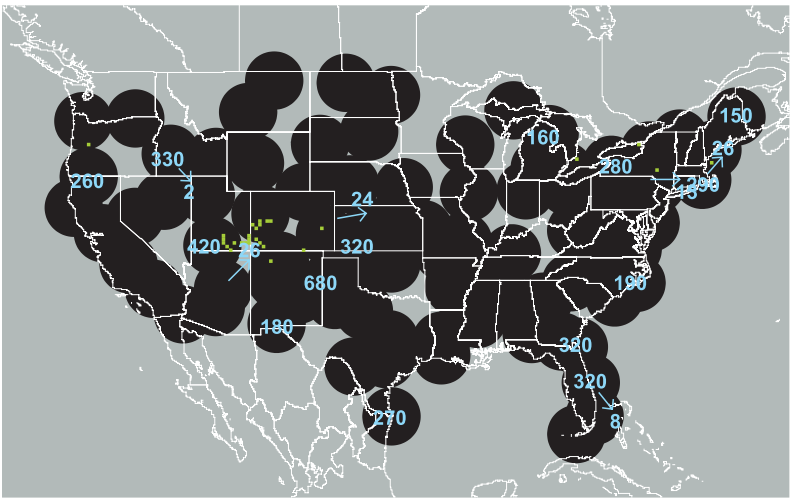
NEXRAD Color Coding (RAIN)

Precipitation Intensity	Color
20 ≤ dBZ < 30	Green ( )
30 ≤ dBZ < 40	Yellow ( )
dBZ ≥ 40	Red ( )

NOTE

The intensity of snow and rain show using the same color coding.

Figure 8-44 Tops/Movement Image (AFD-5220E)



TOPS/MOVEMENT

TPG3094_27

A Tops/Movement image is in view on the upper or lower display area of the MFD when selected from the GWX image list and the GWX format is active.

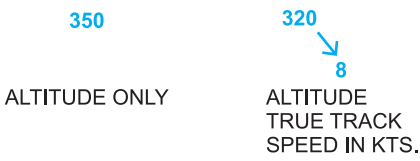
NOTE

Occasionally, the National Weather Service incorrectly identifies test data that exhibits unrealistic weather patterns. Examples are: 1) donut-shaped pattern, 2) pie-slice-shaped pattern, 3) circle-shaped pattern, and 4) bulls-eye-shaped pattern. When an image of this nature is encountered and you suspect the data is in error, wait until the next image update cycle, request a new image, and verify the test pattern is removed.

▼ SELECTIONS:

Tops/Movement Image Symbology

Precipitation symbology, echo tops, and cell movement information shows on Tops/Movement images. Echo tops and cell movement shows for major storm cells. The altitude of the radar tops in hundreds of feet shows in blue centered over the storm cell. When more than one storm type is indicated for a single storm cell, only the most severe type shows. For storm cells with measurable ground speed, a track arrow is drawn from the center point of the storm cell out in the direction of the true track of the cell. A ground speed readout in knots shows at the end of the track arrow.

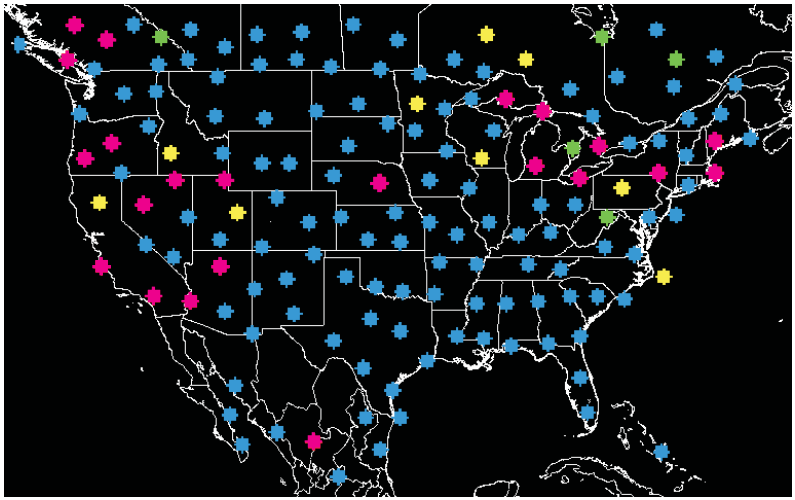


The table that follows lists the colors used on Tops/Movement images to represent areas of precipitation and the relative intensity:

Tops/Movement Color Coding

Precipitation Intensity	Color
20 ≤ dBZ < 30	Green ( )
30 ≤ dBZ < 40	Yellow ( )
dBZ ≥ 40	Red ( )

Figure 8-45 WX Depiction Image (AFD-5220E)



WX DEPICTION

TPG3094_28

A WX DEPICTION image is in view on the upper or lower display area of the MFD when selected from the GWX image list and the GWX format is active. The WX DEPICTION chart shows forecast visibility and ceiling conditions for the selected region.

▼ SELECTIONS:

WX DEPICTION Image Colors	The table that follows lists the categorical outlook definitions used by Universal Weather:

Flight Rule Condition Definitions (Universal Weather)

Flight Rule Condition	Definition
VFR	Ceiling > 3000 ft and Visibility > 5 statute miles (8.05 km or 6400 m)
Marginal VFR	Ceiling ≤ 3000 ft or Visibility ≤ 5 sm (8.05 km or 6400 m)
IFR	Ceiling < 1000 ft or Visibility < 3 sm (4.83 km or 5400 m)
Low IFR	Ceiling < 500 ft or Visibility < 1 sm (1.61 km or 1609 m)

The table that follows list the colors used on WX DEPICTION images:

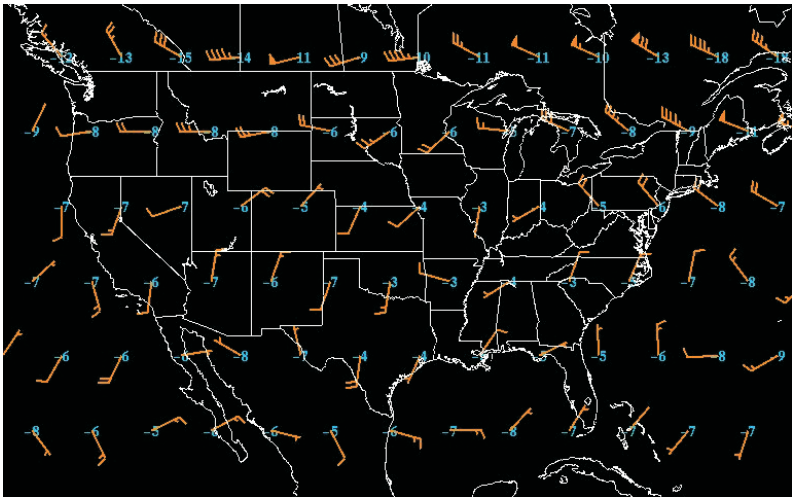
WX DEPICTION Color Coding

Flight Rule Condition	Color
VFR	Sky Blue ( )
Marginal VFR	Green ( )
IFR	Yellow ( )
Low IFR	Magenta ( )

NOTE

WX DEPICTION is based on a finite number of reporting stations. For finer weather detail, refer to other sources such as NEXRAD or TAF reports.

Figure 8-46 Winds/Temps Image (AFD-5220E)



WINDS ALOFT

TPG3094_24

A WINDS ALOFT image is in view on the upper or lower display area of the MFD when selected from the GWX image list and the GWX format is active. The specified altitudes available for winds aloft images (x 1000 feet) are: 5, 10, 18, 24 30, 34, 39, 45, and 53.

▼ SELECTIONS:

WINDS ALOFT Image Symbology	The Winds Aloft charts depict forecast wind direction, wind speed and temperature at a specified altitude. Wind speed is indicated with the use of pennants and barbs on an arrow. The pennants represent 50 knots, barbs represent 10 knots, and half barbs represent 5 knots. The total wind speed is obtained by the summation of all the pennants and barbs on the arrow. The head points to the wind direction. The temperatures are depicted next to the grid points in degrees Celsius. A missing wind is represented as M.

The illustration below shows the symbology used in WINDS ALOFT images:

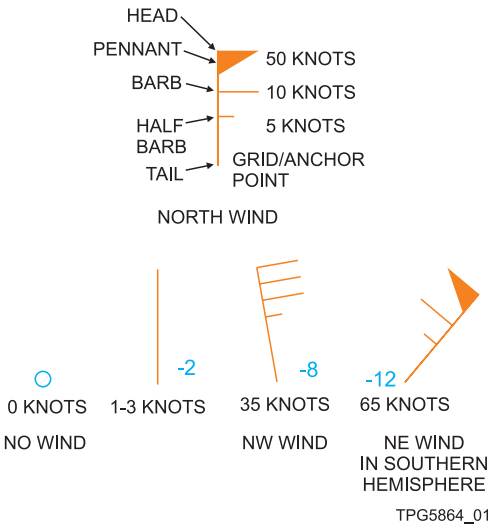
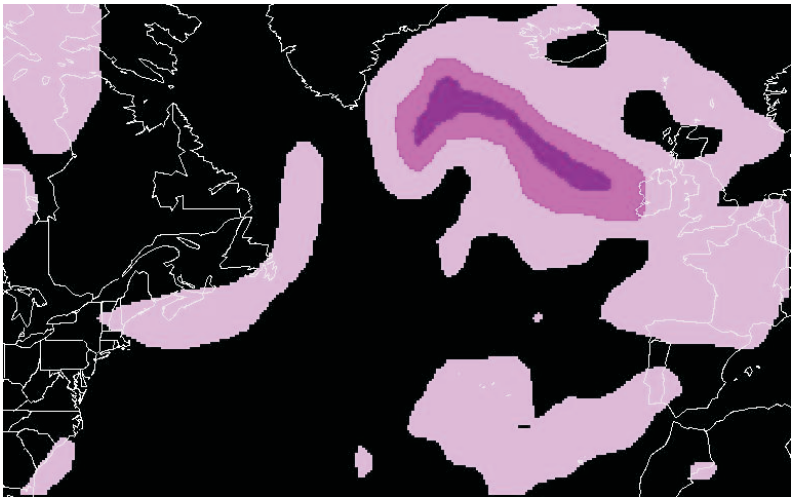


Figure 8-47 Turbulence Image (AFD-5220E)



TURBULENCE

TPG3094_26

A TURBULENCE image is in view on the upper or lower display area of the MFD when selected from the GWX image list and the GWX format is active. The specified altitudes available for turbulence images (x 1000 feet) are: 5, 10, 18, 24 30, 34, 39, 45, and 53.

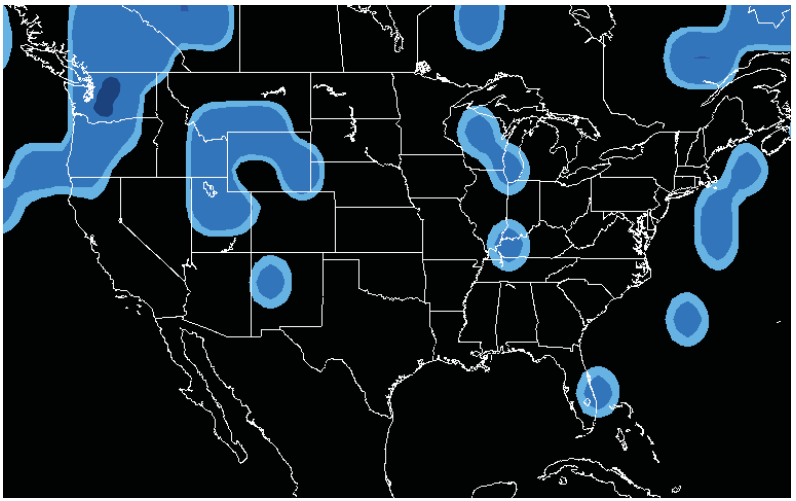
▼ SELECTIONS:

TURBULENCE Image Colors	The table that follows lists the colors used on TURBULENCE images to represent areas of likely turbulence:

TURBULENCE Color Coding

Turbulence Probability	**Color**
Low probability	Light Magenta ( )
Moderate probability	Medium Magenta ( )
High probability	Dark Magenta ( )

Figure 8-48 Icing Image (AFD-5220E)



ICING

TPG3094_25

An ICING image is in view on the upper or lower display area of the MFD when selected from the GWX image list and the GWX format is active. The specified altitudes available for icing images (x 1000 feet) are: 0 (zero), 5, 10, 18, 24, and 30.

▼ SELECTIONS:

ICING Image Colors

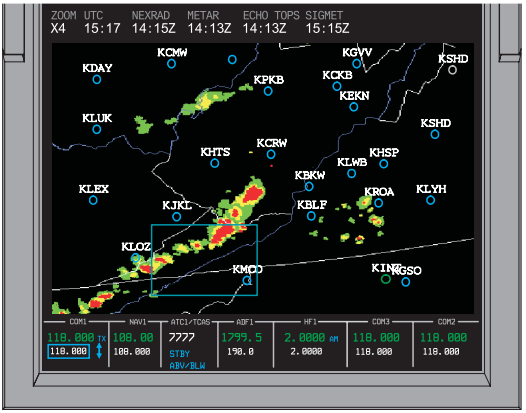
The table that follows lists the colors used on ICING images to represent areas of potential icing:

ICING Color Coding

Icing Potential	Color
Trace rime	Light Blue ( )
Trace clear – Light rime or clear	Medium Blue ( )
Light or greater mixed ice	Dark Blue ( )

GRAPHICAL WEATHER (GWX-3000) (AFD-5220E)

Figure 8-49 Graphical Weather Format (AFD-5220E)



TPH5382_18

The Graphical Weather (GWX-3000) format provides the ability to show GWX images or reports on the MFD. The GWX images are provided by Baron Services via a satellite Information Service Provider (XM Satellite Weather Service).

The GWX image can be a textual weather report/forecast or a graphical image. Weather reports include Significant Meteorological (SIGMET) and Airman Meteorological (AIRMET) advisories and Aviation Routine Weather Reports (METAR). Weather forecasts are Terminal Area Forecast (TAF). Observation images include NEXRAD and Echo Tops. Selection of the desired image is via the GRAPHICAL WEATHER Menu. Refer to the figure on page 8-127.

NOTE

The graphical images are for the whole of the contiguous United States only. No other regions of the world are covered by this weather service provider.

NOTE

GWX is for informational purposes and should not be used for strategic decision making. By its very nature, GWX is delayed from real time weather conditions.

Weather products are transmitted by the satellite on the intervals listed in the table that follows:

XM Weather Products Transmission Schedule

Product	Transmit Interval	Typical Information Update Interval
NEXRAD	5 minutes	5 minutes
METAR	12 minutes	On the hour ± 10 minutes unless special (SA)
ECHO TOPS	90 seconds	30 minutes
SIGMETs	12 minutes	As weather changes
AIRMETs	12 minutes	As weather changes
TAF	12 minutes	Every 6 hours: (0Z, 6Z, 12Z, 18Z) unless amended (ADMT)

▼ SELECTIONS:

ZOOM	The ZOOM display shows the current selected zoom level under the ZOOM legend. The table below shows the zoom level with the associated relative zoom and the MFD text display.

Zoom Levels

Zoom Level	Relative Zoom Factor	Zoom Text	Relative Map Scale
0	1	X1	Entire CONUS
1	4	X4	1/4 CONUS (≈ 640 NM)
2	4	X16	1/16 CONUS (≈ 160 NM)

Push the ZOOM button on the CCP to cycle the zoom level between the values listed in the table above. Push the ZOOM button when the currently active zoom level is two to select zoom level zero. The zoom level selected when GWX format is reselected is the last one commanded. The area of the image that is zoomed is contained within the pan indicator.

UTC

The current system time shows under the UTC legend.

GWX Product Legend/Time Stamp

The GWX Product Legend and Time Stamp shows when the associated graphical overlay is selected ON from the OVERLAYS menu. The time in view is the time of the observation or report.

Pan Indicator

The pan indicator shows on the graphical display when the joystick on the CCP is moved and the GWX format is active and the zoom level is zero or one. The pan indicator consists of a green box. Movement of the pan indicator is controlled by the joystick.

Stale Images

A graphical weather image is considered stale when the current time exceeds the product time stamp by the amounts that follow:

Stale Image Times

Image Type	Stale Time
NEXRAD	15 minutes
ECHO TOPS	4.5 minutes
METAR	36 minutes
SIGMET	36 minutes

The PLAN map age readout shows in yellow within a yellow box when the NEXRAD product is stale. The GWX product time stamp shows in yellow within a yellow box when the associated product is stale. Images are deleted when the current time exceeds the product time by more than 2-hours.

GWX Message Field

The messages that follow may be in view on the MFD in the GWX message field when the GWX format is selected:

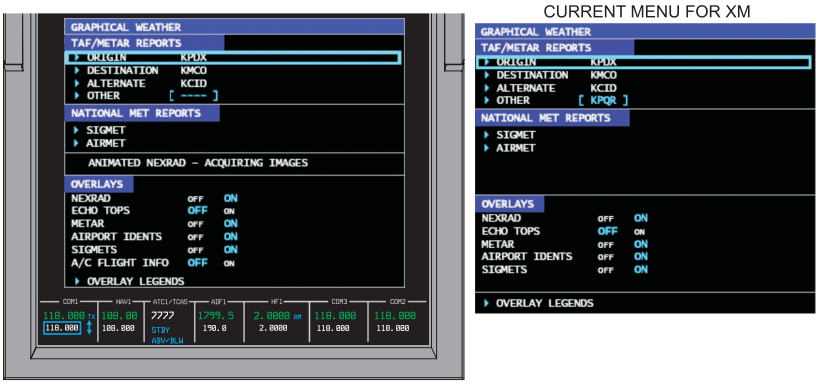
- GWX FAULT
- SUBSCRIPTION EXPIRED
- NOT RECEVING DATA
- SIGMET OVERLAY INCOMPLETE - CHECK TEXT.

NOTE

If the XM Receiver does not receive a valid satellite signal at power-up (e.g., while the aircraft is in a hangar), the XM Receiver is unable to authorize an XM Weather subscription, resulting in the display of the SUBSCRIPTION EXPIRED message. The SUBSCRIPTION EXPIRED message is in view in the GWX message field on the MFD until the XM Receiver receives a valid satellite signal and completes subscription authorization processing.

GRAPHICAL WEATHER MENU (AFD-5220E)

Figure 8-50 Graphical Weather Menu (AFD-5220E)



-105, -106 DISPLAY MENU **-103, -104 DISPLAY MENU**

TPI2344_01

The GRAPHICAL WEATHER menu provides controls for selection of textual weather reports and forecasts, as well selection of graphical image overlays for the upper or lower display area of the MFD. An Overlays Legend provides a key to interpreting the symbology used on the graphical weather overlays.

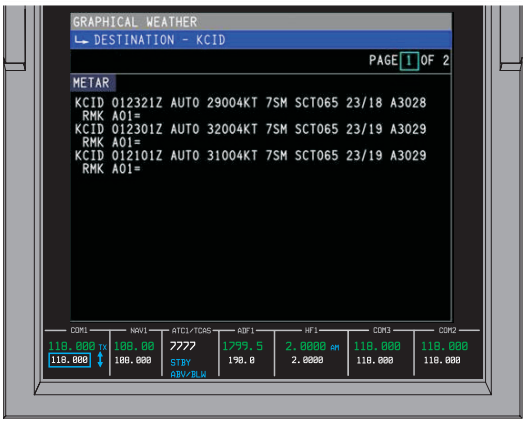
▼ SELECTIONS:

TAF/METAR REPORTS	The TAF/METAR REPORTS menu provides selections for the ORIGIN, DESTINATION, ALTERNATE, and OTHER airports. When an airport is selected, a list of the three most recent METAR reports available shows on the first page, in order of most recent to oldest. Refer to the figure on page 8-129. A second page for the airport TAF/METAR report shows the current TAF report available for that airport. Refer to the figure on page 8-130.

NATIONAL MET REPORTS	The NATIONAL MET REPORTS menu provides selections to display SIGMET and AIRMET reports for the whole of the contiguous United States. When a report type is selected (SIGMET or AIRMET), the appropriate reports page shows, listing all reports in order as follows. Each SIGMET and AIRMET is in view on a separate page. Refer to the figure on page 8-131. • SIGMETs — Listed in alphabetical order by identifier • AIRMETs — Listed in the order received.
OVERLAYS	The OVERLAYS menu shows a list of overlays that are available to be in view on the MFD when the GWX format is selected. Refer to the OVERLAYS entry.
OVERLAY LEGENDS	The OVERLAY LEGENDS page shows all the symbology used on the overlays to assist the operator with interpreting the information display on the overlay. Refer to the figure on page 8-142.

METAR/TAF REPORTS (AFD-5220E)

Figure 8-51 METAR Reports Page (AFD-5220E)



TPH5382_20

The METAR Reports page displays up to the last three METAR reports for the associated airport.

▼ SELECTIONS:

Title	The title for the METARS Report page is one of the items that follow: • ORIGIN <airport ICAO identifier> • DESTINATION <airport ICAO identifier> • ALTERNATE <airport ICAO identifier> • OTHER <airport ICAO identifier>.
METAR Reports	The METAR Reports section shows the three most recent METAR reports for the associated airport. When no METAR text exists for the associated airport, the message NO DATA AVAILABLE shows instead of a METAR report.

NOTE

The only METARS that are available are those received since aircraft power-up or that follow an airport change.

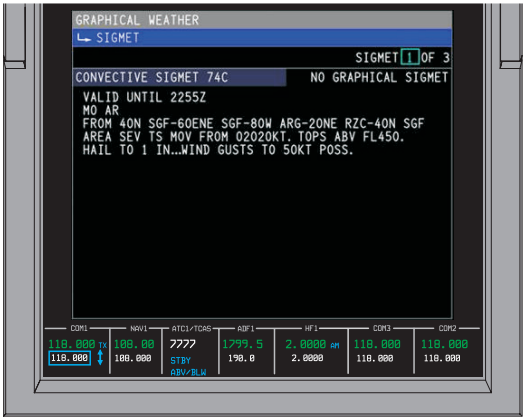
Figure 8-52 TAF Report Page (AFD-5220E)

TPH5382_21

The second page of the TAF/METAR Reports pages for the selected airport shows the current TAF report for the airport. The TAF report page shows the TAF report in its entirety.

SIGMET/AIRMET REPORTS (AFD-5220E)

Figure 8-53 SIGMET/AIRMET Reports Page (AFD-5220E)



TPH5382_22

The SIGMET/AIRMET Report page title is either SIGMET or AIRMET, depending on the selection made on the GRAPHICAL WEATHER menu page. When there are multiple reports available, additional pages are available to display the SIGMETs or AIRMETs.

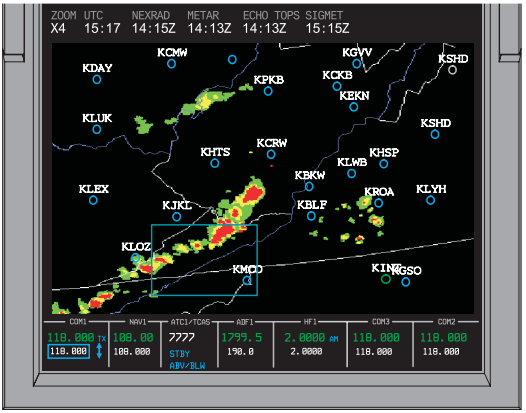
When no graphical SIGMET data is available, the message NO GRAPHICAL SIGMET appears in the upper right corner of the SIGMET Report page.

TECH DETAIL

A maximum of 50 active SIGMET reports and 75 active AIRMET reports can be presented.

ANIMATED NEXRAD (AFD-5220E) (-105, -106, -108)

Figure 8-54 Animated NEXRAD (AFD-5220E) (-105, -106, -108)



TPH5382_23

The ANIMATED NEXRAD state allows the flight crew to view a time elapsed sequence of weather images. The sequence of images runs in a loop using a minimum of three to a maximum of five valid NEXRAD images received from the datalink. The loop sequence runs until canceled. During normal operation the system stores a snap shot of the NEXRAD and associated time stamp, every 15 minutes or greater, as soon as available. A maximum of five snap shots are stored. When ANIMATED NEXRAD mode is selected the stored snapshots are in view as a series of frames in time sequence (oldest first) with a 0.7 second interval between each frame.

NOTE

ANIMATED NEXRAD cannot be selectable until three or more valid frames of data have been stored by the system.

The messages that follow can show when ANIMATED NEXRAD is active on the display:

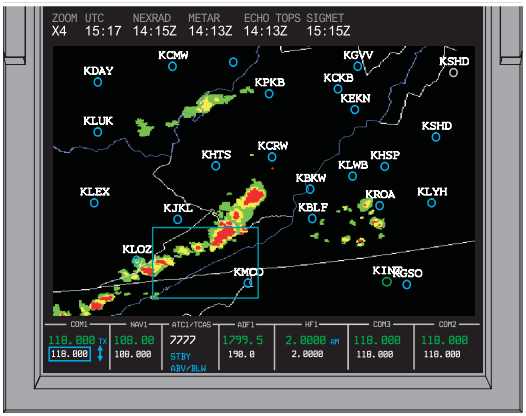
- ACQUIRING IMAGES
- AVAILABLE.

OVERLAYS (AFD-5220E)

Condition(s):

When NEXRAD is selected from the OVERLAYS menu, the NEXRAD image is in view on the MFD when the GWX format is selected.

Figure 8-55 NEXRAD Overlay (AFD-5220E)



TPH5382_23

▼ SELECTIONS:

Rain Depiction

The table that follows lists the colors used on NEXRAD images to represent regions of rain precipitation and the relative intensity:

NEXRAD Rain Precipitation Color Coding

Rain Intensity	Color
20 ≤ dBZ < 30	Green ( )
30 ≤ dBZ < 40	Yellow ( )
dBZ ≥ 40	Red ( )

Mixed Precipitation Depiction

The table that follows lists the colors used on NEXRAD images to represent regions of mixed rain and snow precipitation and the relative intensity:

NEXRAD Mixed Precipitation Color Coding

Mixed Precipitation Intensity	**Color**
10 ≤ dBZ < 30	Light Magenta ( )
30 ≤ dBZ < 40	Medium Magenta ( )
dBZ ≥ 40	Dark Magenta ( )

Snow Depiction

The table that follows lists the colors used on NEXRAD images to represent regions of snow precipitation and the relative intensity:

NEXRAD Snow Precipitation Color Coding

Snow Intensity	**Color**
10 ≤ dBZ < 30	Light Blue ( )
30 ≤ dBZ < 40	Medium Blue ( )
dBZ ≥ 40	Dark Blue ( )

Other Conditions

The table that follows lists the colors used on NEXRAD images to represent other conditions:

NEXRAD Other Conditions Color Coding

Other Condition	Color
No significant precipitation	Black (■)
Missing data or no RADAR coverage	Dark Gray (■)

The illustration that follows shows the NEXRAD precipitation depictions and the associated colors:

TPG5884_01

Condition(s):

When ECHO TOPS is selected from the OVERLAYS menu, the ECHO TOPS image is in view on the MFD when the GWX format is selected.

▼ SELECTIONS:

Echo Top Symbology

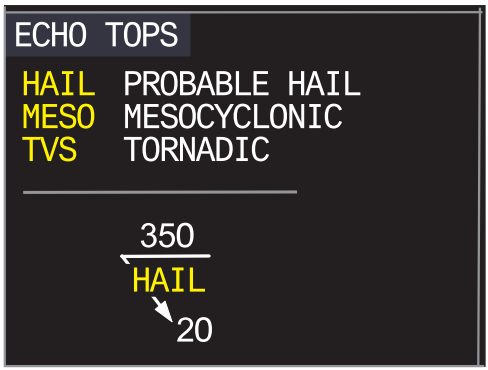
Precipitation symbology, echo tops, and cell movement information shows on Echo Top images. When more than one storm type is indicated for a single storm cell, only the most severe type shows. The Echo Top legend shows a white horizontal line drawn with the left most end of the line located at the latitude/longitude of the storm cell. The storm top altitude in hundreds of feet shows above the line in white. A storm type legend is listed under the line. The storm type and color is one of the items that follow:

Echo Top Storm Type

Storm Type Legend	Color
No storm type	<blank>
HAIL	Yellow
MESO	Yellow
TVS	Yellow

A white track arrow is drawn from the latitude/longitude of the storm cell out in the direction of the true track of the cell when track is known. A ground speed readout in knots shows at the end of the track arrow when the groundspeed of the cell is known.

The illustration that follows shows the Echo Tops symbology:

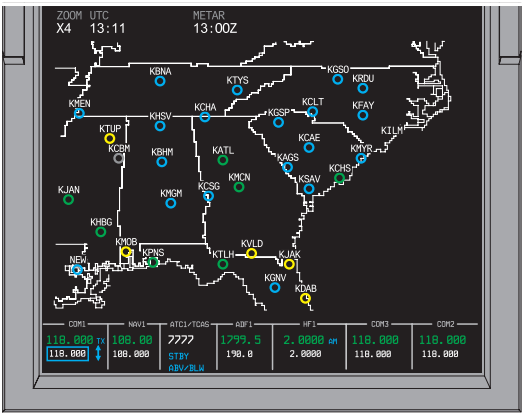

ECHO TOPS
HAIL PROBABLE HAIL
MESO MESOCYCLONIC
TVS TORNADIC
350
HAIL
20

TPG5884_03

Condition(s):

When METAR is selected from the OVERLAYS menu, the graphical METAR image is in view on the MFD when the GWX format is selected.

Figure 8-56 METAR Overlay (AFD-5220E)



TPH5382_26

▼ SELECTIONS:

METAR	The METAR overlay consists of flight rule icons that are colored according to the IMC Flight Rules data received from the Datalink for the associated airport. When no data is received or the received data is corrupted or cannot be interpreted, a gray circle shows for the associated airport. To reduce display clutter, the number of displayed icons is filtered based on the selected zoom level. The table that follows lists the categorical outlooks as defined by the FAA:

Flight Rule Condition Definitions (FAA)

Flight Rule Condition	Definition
VFR	Ceiling > 3000 ft and Visibility > 5 statute miles
Marginal VFR	1000 ≤ Ceiling ≤ 3000 ft and/or 3 ≤ Visibility ≤ 5 miles
IFR	500 ≤ Ceiling < 1000 ft and/or 1 ≤ visibility < 3 miles
Low IFR	Ceiling < 500 ft and/or Visibility < 1 mile

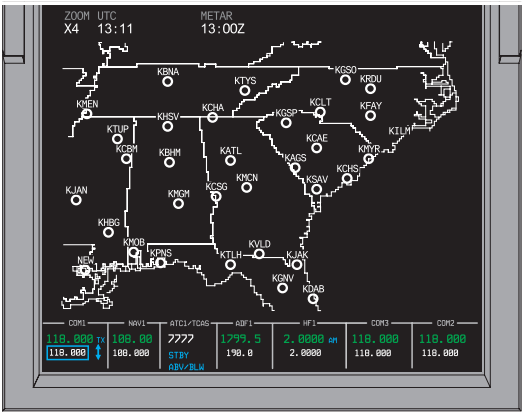
The illustration that follows shows the Flight Rule condition and the associated icon color:

TPG5884_02

Condition(s):

When AIRPORT ICONS is selected ON from the OVERLAYS menu and the GWX format is selected, the current graphical image on the MFD is overlaid with airport icons.

Figure 8-57 Airport Idents Overlay (AFD-5220E)



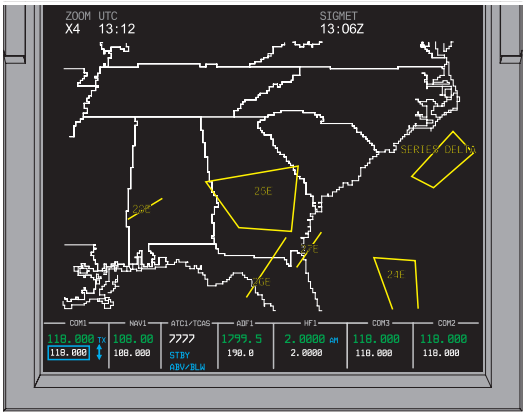
TPH5382_28

The AIRPORT ICONS depicts airports and reporting stations that are within the currently displayed image. The AIRPORT ICONS consist of a small circle with the ICAO identifier for the airport above the circle.

Condition(s):

When SIGMET is selected from the OVERLAYS menu, the graphical SIGMET images are in view on the MFD when the GWX format is selected.

Figure 8-58 SIGMET Overlay (AFD-5220E)



TPH5382_29

The SIGMET consists of a point, line, or unfilled polygon that defines the geographic extent of the report and its identifier.

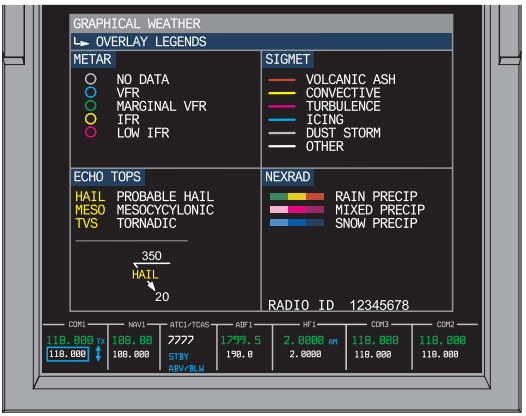
▼ SELECTIONS:

SIGMET	The illustration that follows shows the SIGMET condition and the associated display color:

TPG5884_04

OVERLAY LEGENDS (AFD-5220E)

Figure 8-59 Overlay Legends Page (AFD-5220E)

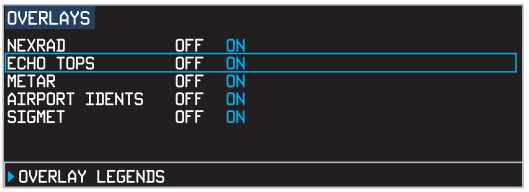


TPH5382_32

The OVERLAY LEGENDS page displays all the symbology used in the graphical weather overlays.

GWX OVERLAYS MENU (AFD-5220E)

Figure 8-60 GWX Overlays Menu (AFD-5220E)



TPH5382_55

The Overlays Menu is used to control the various layers of information displayed on the GWX format.

▼ SELECTIONS:

GWX Overlays Menu

The GWX Overlays Menu is selected from the Graphical Weather Menu with controls on the CCP.

- The GWX Overlays Menu is used to control the various layers of information such as:
  - NEXRAD
  - Echo Tops
  - METARs
  - Airport Idents
  - SIGMETs.

NOTE

Once an overlay is selected for display on the format it remains on until it is selected off.

MAP DISPLAYS (AFD-5220E)

Two map display formats are available to the flight crew. The FMS Present Position (PPOS) Map is a heading-up present position moving map. The FMS Plan Map (PLAN) is a fixed stationary map oriented to true-north. Both map formats graphically depict the active FMS flight plan and FMS-supplied map background symbology (e.g., navaids, intersections, airports, etc.).

PPOS MAP (AFD-5220E)

Figure 8-61 Present Position Map (AFD-5220E)

TPH5382_77

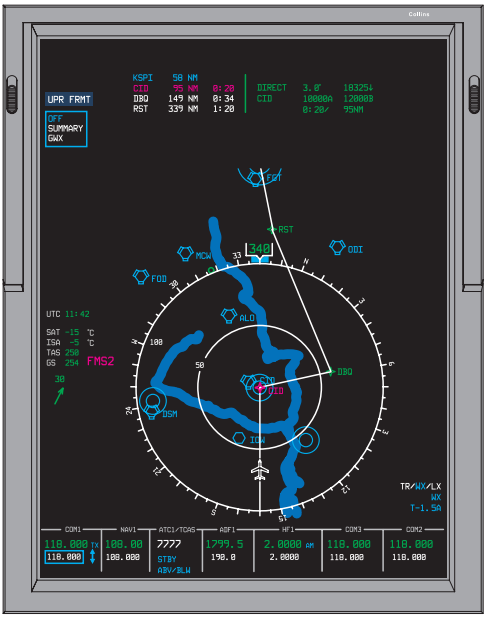
The PPOS (present position) Map is a heading-up 360° moving map. When the active NAV source is FMS, FMS waypoints, navaids, etc. which are in the area surrounding the aircraft show. Solid lines show the flight plan legs connecting the waypoints. When the active NAV source is VOR or LOC, a course/deviation display shows. Two bearing pointers can be selected for display. The MFD PPOS Map has two sub-modes selectable from the FMS CDU, Data Window and Extended Map. An aircraft symbol shows in the center of the map. A full-range ring and a half range ring show full time. The Weather Radar, Lightning, Terrain, and TCAS overlays are available for display. The LWR FRMT button on the CCP is used to select the PPOS Map. The optional Integrated Flight Information System (IFIS) adds Enhanced Map (E-Map) features

and symbology that includes Geopolitical Boundaries, Airspace, and Airways. The MFD menu is selected with controls on the CCP.

▼ SELECTIONS:

PPOS Map Sub-modes (MFD only)	The MFD PPOS Map Format has two sub-modes selectable from the FMS CDU, Text Window and Extended Map. The area on the MFD above the normal navigation display is used for the Text Window or Extended Map. A third, Full Page Map, can be selected from the UPR FRMT menu on the MFD. • The Extended Map sub-mode displays approximately 50 percent more forward range. The area used by the Text Window is used to show the Extended PPOS Map, therefore Text Window and Extended Map are mutually exclusive. The Extended map is selectable from the FMS CDU by turning OFF the FMS Window. • The text Window sub-mode shows up to four lines of FMS text above the Map. The Text Window typically contains data associated with the current or upcoming flight legs. The Rockwell Collins FMS can show up to seven rows of text and offers the option of showing information associated with both lateral and vertical waypoints.

- A Full Page Map can be displayed by selecting OFF on the MFD UPR FRMT menu. The Full Page Map provides an increased forward and backward viewing area. When the PPOS Map format is selected in the lower window and OFF is selected in the upper window, the center of the map is moved up approximately 1.5 inches and the display area is increased into the upper half of the display.



TPH6126_01

Map Source

The Map source is the same as the NAV source when the NAV source is an FMS, otherwise, the Map source is the on-side FMS when dual FMSs are installed or the Map source is FMS when a single FMS is installed.

- The NAV SOURCE menu on the PFD is selected with the NAV SRC button on the DCP. The NAV SOURCE menu shows on the left side of the PFD. The selected source shows is cyan.
- The Map Source shows in the same relative position on the MFD as the NAV source is on the PFD.

Flight Plan Symbology

When there is a flight plan in the FMS, the flight plan legs show as solid lines connecting the flight plan waypoints. Flight plan waypoints are identified with a string of up to seven characters. Waypoint symbology displayed for flight plans are waypoints, user waypoints, runway thresholds, holding patterns and procedure turns. The active flight plan leg and the (to) waypoint are green, yellow, or white following the Map source color. The flight plan legs and waypoints other than the active leg/waypoint are white.

Aircraft Symbol

An aircraft symbol shows in the center of the map. The aircraft symbol is an outline shape when the active NAV source is FMS. The aircraft symbol is a stick type symbol when the active NAV source is VOR or LOC.

Range Rings

A full-range ring and a half range ring show full time. The full-range in nautical miles shows inside the range ring on the left side. One half the full-range value shows in the left portion of the half range ring. The RANGE knob on the DCP is used to select the display range. The standard (Gen Av) display ranges are: 5, 10, 25, 50, 100, 200 and 300 NM. When the TR or WX overlays are not active, a 600 NM range is available.

NOTE

When Radar or optional Terrain is active on either the MFD (or the on-side PFD) while the 600 NM range is active, the range automatically decrements to 300 NM, and the 600 NM range cannot be selected until neither Radar nor optional Terrain is active on the MFD or on-side PFD.

NOTE

Range settings are dependant upon CSU strapping. Gen Av ranges: 5, 10, 25, 50, 100, 200, 300 and 600. Air Transport ranges: 5, 10, 20, 40, 80, 160, 320, 640.

Map background symbology

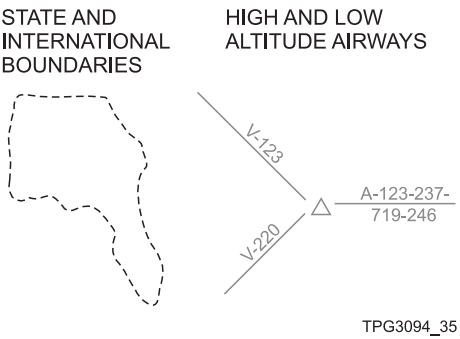
The Map background data is comprised of map symbols that show geometrically correct on the map. Selection of background data is controlled from the FMS. Refer to the FMS Operations Description for details.

Weather Radar, Terrain, and TCAS overlays

Weather Radar, Terrain, and TCAS overlays are available for display. The TR/WX button on the DCP is used to select the Weather Radar or Terrain overlay. The TFC button on the DCP is used to select the TCAS overlay.

Define Waypoints	The pilot can define waypoints on the MFD by positioning a (+) cursor using the joystick on the CCP. The (+) cursor position is defined as the Latitude and Longitude of the graphical equivalent on the map. The FMS receives the (+) cursor position from the MFD when the CCP ENTER button is pressed. The (+) cursor is removed when ENTER is pushed twice without using the joystick, or when the joystick is not used for 60-seconds, or the MFD Control Switch is switched, or when a map failure occurs. The Joystick (+) Cursor shows in white. There is a dashed white line drawn from the map center to the cursor. The cursor shows on the MFD when the joystick is deflected when the map is a PPOS or FMS Plan Map. The cursor moves within the map area in the direction of the joystick deflection.
Upper Format	The UPR FRMT button on the CCP displays OFF, Summary, or GWX (optional).
Lower Format	The LWR FRMT button on the CCP displays PPOS, Plan, 3D Plan (optional), GWX (optional), or TCAS.
E-Map Symbology (optional)	The E-Map symbology include geopolitical boundaries, airspace, and airways. The E-Map symbology that is available on the PPOS map is listed as follows: • First Order Administrative boundaries (defined as State/Province boundaries) are depicted using dotted grey lines for the United States, Canada, Russia, China, and Australia.

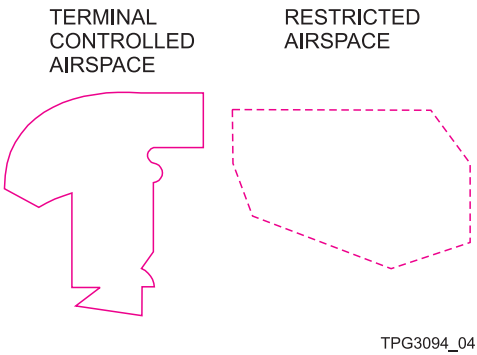
- International boundaries are depicted using dotted grey lines.
- Airways are depicted with a series of straight grey lines from the start to the finish of each airway segment. A triangle symbol is placed at the end of each leg of an airway. The identifier for the airway shows in the middle of each segment of the airway line. The identifier does not show when the actual text length of the identifier is to great to be drawn in the middle of the segment.



- Rivers are depicted with dark blue solid lines.
- Lakes are depicted with a solid dark blue filled area.
- Coastlines/Oceans are depicted with a solid dark blue filled area.

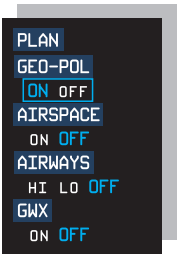
Controlled airspace that is depicted on the map includes Class B & C, CTA, and TMA/TCA airspace.

- Controlled airspace is depicted with solid magenta lines.
- Restricted airspace is depicted with dotted magenta lines.



MFD Map Symbols Menu

The Map Symbols menu allows the selection of the back ground information that is displayed on the PPOS and Plan map formats. This includes:



TPH5382_59

- Geo-political boundaries (GEO-POL)
- Airspace
- Airways
- Graphical Weather (GWX).

Auto Map Declutter

Airspace, Airways, and geopolitical E-Map symbology is removed automatically based on the selected range as described below:

- Airways symbology is automatically removed when a range above 50 NM is selected.
- Airspace symbology is automatically removed when a range above 100 NM is selected.
- Geopolitical symbology is automatically removed when ranges above 300 NM are selected.

NOTE

Range settings are dependant upon CSU strapping. Gen Av ranges: 5, 10, 25, 50, 100, 200, 300 and 600. Air Transport ranges: 5, 10, 20, 40, 80, 160, 320, 640.

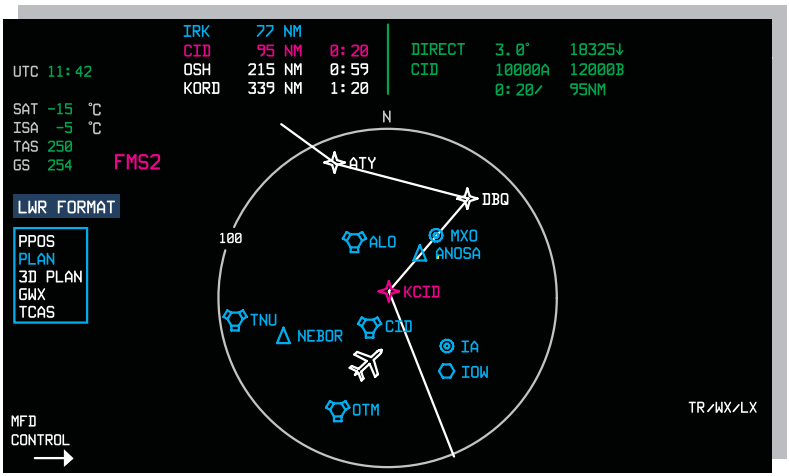
Fault Messages

Faults that prevent the proper display of the E-Map overlays are identified with specific fault messages. The fault messages show in the lower center portion of the MFD. The E-Map symbology is removed when an E-Map fault message is in view. The E-Map fault messages are as follows:

- AIRSPACE FAULT
- AIRWAYS FAULT
- GEO-POL FAULT
- NO AIRSPACE AVAILABLE
- NO AIRWAYS AVAILABLE
- NO GEO-POL AVAILABLE
- PROCESSING REQUEST.

PLAN MAP (AFD-5220E)

Figure 8-62 Plan Map Format (AFD-5220E)



TPH5382_78

The FMS Plan Map is a fixed, true north-up stationary map that graphically depicts the active FMS flight plan. The active flight plan is represented by flight plan waypoints and flight plan legs. Background Navaid symbology is available for display via the FMS. Enhanced map (E-Map) features may be available when the optional Integrated Flight Information System (IFIS) is installed. Graphical Weather (GWX) features may be available when the optional IFIS is installed. The pilot can define waypoints on the FMS Plan Map in the same manner as on the PPOS Map. A moving aircraft symbol is positioned geographically on the map with input from the FMS and oriented with the current aircraft heading. The map center is a latitude and longitude selected by the FMS. The map radius is selected with the RANGE knob on the DCP. FMS Plan Map display has two sub-modes which are controlled by controls on the FMS: Data Window and Extended Map. The FMS Plan Map is selected for display with the LWR FRMT button on the CCP. The Map source is selected from the NAV SOURCE menu on the PFD same as the PPOS Map. The NAV SOURCE menu is selected with the NAV SRC button on the DCP.

▼ SELECTIONS:

FMS Plan Map Submodes	The FMS Plan Map has two sub-modes selectable from the FMS CDU, FMS Text Window and Extended Map. The area on the MFD above the normal navigation display is used for the FMS Text or Extended PPOS Map displays. A third, Full Page Map, can be selected from the UPR FRMT menu on the MFD. • The Extended Map sub-mode shows approximately 50 percent more forward range. The display area used by the Text Window is also used by the Extended Map, therefore the Text Window and Extended Map are mutually exclusive.

- The Text Window sub-mode shows up to four lines of FMS text above the FMS Plan Map. The Text Window typically contains data associated with the current or upcoming flight legs. The Rockwell Collins FMS can show up to seven rows of text and offers the option of showing information associated with both lateral and vertical waypoints.
- A Full Page Map can be displayed by selecting OFF on the MFD UPR FRMT menu. The Full Page Map provides an increased forward and backward viewing area. When the PPOS Map format is selected in the lower window and OFF is selected in the upper window, the center of the map is moved up approximately 1.5 inches and the display area is increased into the upper half of the display.

Flight Plan Symbology

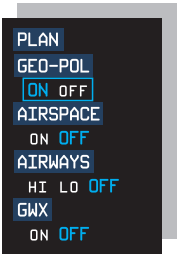
When there is a flight plan in the FMS, the flight plan legs show as solid lines connecting the flight plan waypoints. Flight plan waypoints are identified with a string of up to seven characters. Waypoint symbology displayed for flight plans are waypoints, user waypoints, runway thresholds, holding patterns and procedure turns. The active flight plan leg and the 'to' waypoint are green, yellow, or white following the Map source color. The flight plan legs and waypoints other than the active leg/waypoint are white.

Map background symbology

The Map background data is comprised of map symbols that show geometrically correct on the map. Selection of background data is controlled from the FMS. Refer to the FMS Operations Description for details.

Enhanced Maps (optional)

Enhanced map (E-Map) features may be available when the optional Integrated Flight Information System (IFIS) is installed. E-Map symbology includes Geographic and Political (Geo-pol) boundaries, Airspace, and Airways. The map menu on the MFD allows selection of the E-Maps.



TPH5382_59

Graphical Weather (optional)

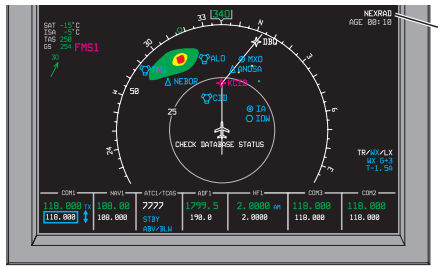
The optional Integrated Flight Information System (IFIS) adds the NEXRAD feature to the FMS Plan map. The NEXRAD feature allows an uplinked NEXRAD digital image to be overlaid on the Plan map. The status of the GWX image shows on the MFD when the GWX overlay is active on the Plan map. The PLAN map menu on the MFD allows selection of the NEXRAD graphical weather on the MFD PLAN map.

NOTE

The NEW GWX message flashes initially when the FSU receives a new image. The message remains in view until it is cleared by going to the image list. Press the MENU button and to show the list of images. Additional new images received by the FSU does not cause the message to flash until the message is cleared.

GWX Status (optional)

The status of the GWX image shows on the MFD when the GWX overlay is active on the Plan Map. The status shows on the right side of the MFD as displayed below. Refer to the MESSAGES AND ANNUNCIATORS chapter for detailed information. The status message shows as one of the items that follow:



TPH5382_50

- NEXRAD AGE HH:MM (in white). The HH:MM readout is the age of the NEXRAD image in hours and minutes.
- NEXRAD AGE HH:MM (in yellow).
- NO USA NEXRAD AVAILABLE.

Define Waypoints	If the joystick is not used for Checklist or Maintenance mode and the MFD format is PPOS or Plan, the pilot can define waypoints on the MFD by positioning a (+) cursor using the joystick on the CCP. The (+) cursor position is defined as the Latitude and Longitude of the graphical equivalent on the map. The FMS receives the (+) cursor position from the MFD when the CCP ENTER button is pressed. The (+) cursor is removed when ENTER is pushed twice without using the joystick, or when the joystick is not used for 60-seconds, or the MFD Control Switch is switched, or when a map failure occurs. The Joystick (+) Cursor shows in white. There is a dashed white line drawn from the map center to the cursor. The cursor shows on the MFD when the joystick is deflected when the map is a PPOS or FMS Plan Map. The cursor moves within the map area in the direction of the joystick deflection.
Map Center	When the FMS Plan Map is initially selected, the (to) waypoint is the map center. Thereafter, the flight plan center can be centered about a position or waypoint selected by the pilot via the FMS. Refer to FMS operation description.
Map Source	The Map source is the same as the NAV source when the NAV source is an FMS, otherwise, the Map source is the on-side FMS when dual FMSs are installed or the Map source is FMS when a single FMS is installed.

- The NAV SOURCE menu on the PFD is selected with the NAV SRC button on the DCP. The NAV SOURCE menu shows on the left side of the PFD. The selected source shows is cyan.
- The Map Source shows in the same relative position on the MFD as the NAV source is on the PFD.

Upper Format

The UPR FRMT button on the CCP displays OFF, Summary, or GWX (optional).

Lower Format

The LWR FRMT button on the CCP displays PPOS, Plan, 3D Plan (optional), GWX (optional), or TCAS.

Range Rings

When 3D is not installed, the range ring is the full-range, no grid lines, and the map is fixed at North up. Range symbology includes a full-range ring and a full-range readout. The range readout shows in a cutout in the full-range ring. When 3D is installed, the range ring is half the range except for the top range selection which puts the Map in full-range. The RANGE knob on the DCP is used to select the display range. The standard (Gen Av) display ranges are: 5, 10, 25, 50, 100, 200, and 300 NM. When TR and WX overlays are not active a 600 NM display range is available.

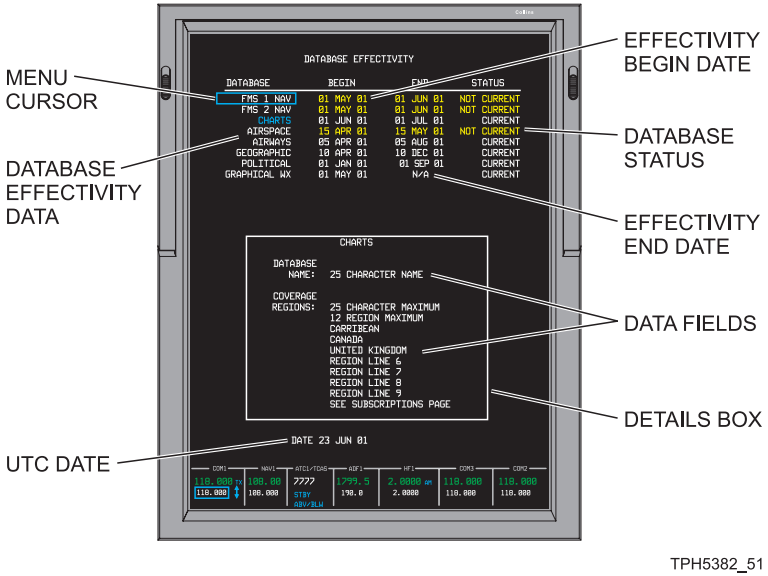
NOTE

Range settings are dependant upon CSU strapping. Gen Av ranges: 5, 10, 25, 50, 100, 200, 300 and 600. Air Transport ranges: 5, 10, 20, 40, 80, 160, 320, 640.

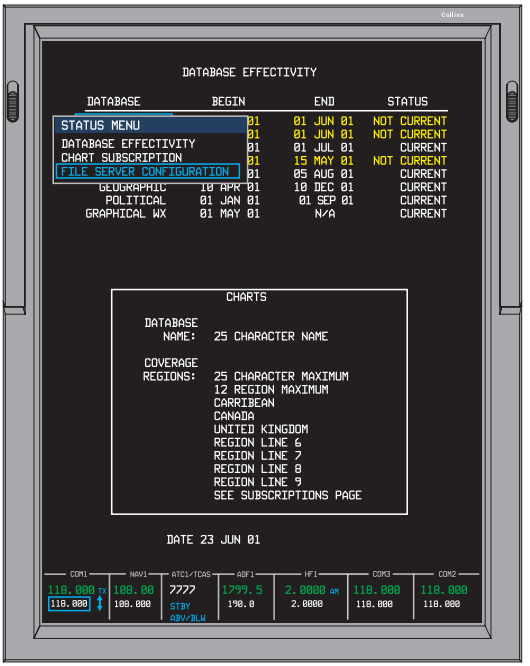
Aircraft Symbol	The moving aircraft symbol is positioned geographically on the map with input from the FMS and oriented with the current AHRS input. The aircraft symbol is a swept wing unfilled aircraft symbol (the same as the PPOS Map aircraft symbol).
GWX Fault Messages (optional)	The fault messages that follow may be in view when the GWX overlay is active on the Plan Map: • — —:— — • GWX FAULT.

DATABASE EFFECTIVITY PAGE (AFD-5220E)

Figure 8-63 Database Effectivity Page with and without STAT MENU (AFD-5220E)



TPH5382_51



TPH5382_52

The optional Database Effectivity page provides the aircraft operator with a means to assess the currentness of the installed databases. A list of the installed databases shows on the Database Effectivity page. The list includes the name, begin date, end date, and status (current or not current) for enabled databases. The Database Effectivity page is also used to navigate between the installed databases and to provide specific information regarding the installed databases. The Database Effectivity page is selected from the STAT format menu when the MFD is in a STAT window configuration. The CCP is used to navigate the STAT menu selections.

The MFD shows database information from the same side File Server Unit (FSU). In the event of a dual FSU installation, the left MFD shows data from the left FSU and the right MFD shows data from the right FSU.

NOTE

If UTC time is unavailable when the FSU initially powers-up, all databases are marked as expired. When UTC becomes valid, as displayed on the bottom of the PFD, the database effectivity are checked accordingly.

▼ SELECTIONS:

Database List

The database list shows all databases that support enabled applications. The list shows below the DATABASE legend. The possible list items show in column one of the table that follows. The update time of the associated database shows in column two of the table:

FREQUENCY OF DATABASE UPDATES

Database	Update Periods
FMS NAV database	28 days
CHARTS database	14 days
AIRSPACE database	28 days
AIRWAYS database	28 days
GEOGRAPHIC database	As required
POLITICAL database	As required
GRAPHICAL WX databases	As required

NOTE

When more than one FMS is installed, the FMS NAV database legend includes the FMS identifier, (e.g., FMS1 NAV). When one FMS is installed, the FMS legend is FMS NAV.

Database Status

The database status messages are in view on the Database Effectivity page.

- CURRENT
- NOT CURRENT.

NOTE

The associated database title, begin date, and end date also show in yellow when the database is NOT CURRENT.

Details Window

The database details window provides additional information regarding the selected database. Various databases provide different levels of detail information in the detail window. Most provide regional coverage information. Others databases provide additional information like subscriber name, etc.

Messages

The text messages that follow are in view on the Database Effectivity page:

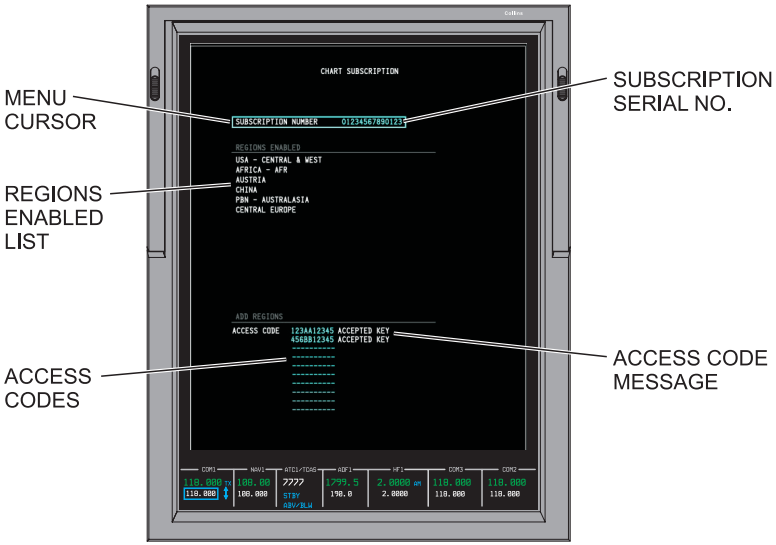
- SEE SUBSCRIPTIONS PAGE
- NO REGIONS AVAILABLE FOR CURRENT SUBSCRIPTION
- CHECK DATABASE STATUS
- PROCESSING REQUEST
- DATABASE EFFECTIVITY FAULT.

UTC Date

The current date shows at the bottom of the Database Effectivity page when the master date is available from the avionics system. When the current date is failed or missing, dashes show in place of the UTC data.

CHART SUBSCRIPTION PAGE (AFD-5220E)

Figure 8-64 Chart Subscription Page (AFD-5220E)



TPH5382_35

The optional Chart Subscription page allows the pilot or maintenance personnel to enter information to change the chart region coverage of the database. The Chart Subscription page contains a subscription number data entry field, a list of enabled regions, and an add regions data entry field. Regions are added to the list by entering temporary access codes. Up to seven temporary access codes can be entered. Both the Subscription number and access codes are obtained from Jeppesen. The Chart Subscription page can only be modified on the ground.

▼ SELECTIONS:

Regions Enabled List	After entering the subscription serial number, a list of the enabled regions associated with the subscription serial number shows below the subscription serial number.

Regions Enabled Messages

The text messages that follow are in view in the regions enabled list:

- NO REGIONS AVAILABLE FOR CURRENT SUBSCRIPTION
- PROCESSING REQUEST
- SUBSCRIPTION FAULT.

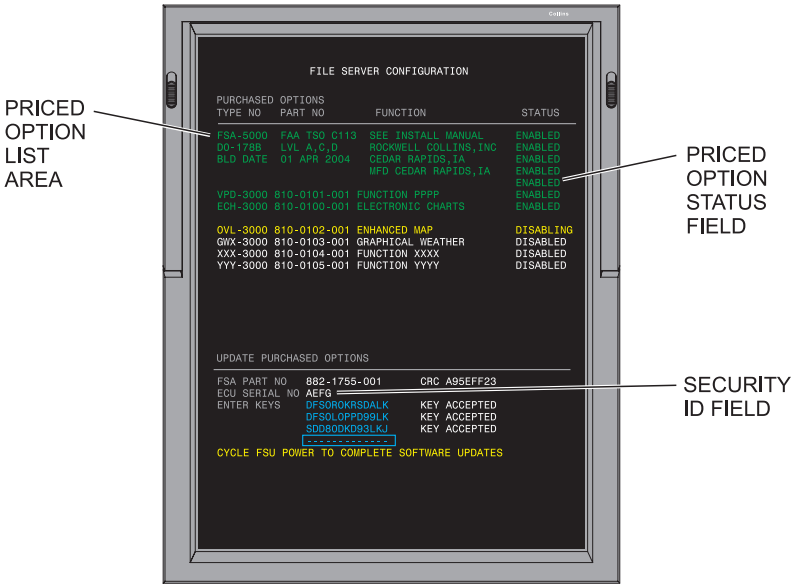
Chart Subscription Messages

The text messages that follow are in view in the Add Regions Field:

- ACCEPTED KEY
- INVALID ENTRY
- PROCESSING
- CODE FAULT.

FILE SERVER CONFIGURATION PAGE (AFD-5220E)

Figure 8-65 File Server Configuration Page (AFD-5220E)

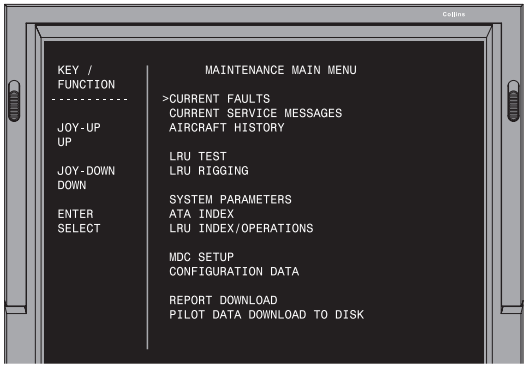


TPI2426_01

The File Server Configuration format provides information on the system Priced Options available to the customer. Status information indicates those options that are currently enabled, or disabled, as well as the status of those options that the user is in the process of enabling or disabling. The enabling and disabling function is managed through the input of Encrypted Application Keys (EAKs). The Encrypted Application Keys provide the information necessary to allow the system to unlock the associated application software that is already resident in the system. An Encrypted Application Key is an alphanumeric string that is generated to unlock an application on the single aircraft for which it was purchased. An Encrypted Application Key for one aircraft will not work on another aircraft and is rejected.

- The Priced Option list consists for each priced option information that follows:
  - Priced option type number
  - Priced option part number
  - Priced option description.
- Priced Option Status Field Messages:
  - Enabled
  - Disabled
  - Enabling
  - Disabling
  - Error.
- EAK Data Entry Status Field Messages:
  - Key Accepted
  - Invalid Key
  - Processing
  - Config Fault.

MDC DIAGNOSTICS (AFD-5220E)



TPI2425_01

The Maintenance Diagnostic Computer (MDC) continuously monitors avionics units and reports faults when appropriate. The MDC Diagnostics pages provides access to the MDC fault codes to conduct troubleshooting operations.

The CURRENT FAULTS page gives information on current fault status. The AIRCRAFT HISTORY page provides fault history and a summary of the various legs of the flight. The MDC SETUP page provides setup control of some MDC parameters. Examples include the aircraft identification code and the aircraft clock, configuration control, and the file load function that allows files from a database, including user checklists, to be loaded from a disk. The REPORT DOWNLOAD page provides the ability to download MDC report files to a diskette. There is also a separate Flight Control System (FCS) diagnostic that allows troubleshooting of autopilot and yaw damper failures.

Refer to the Pro Line 21 Continuum Retrofit Avionics System with IFIS-5000 Diagnostic Guide (CPN 523-0806300) for detailed information on the MDC Diagnostic feature.

CHECKLISTS (AFD-5220E)

Figure 8-66 Checklists (AFD-5220E)

TPH5382_37

The Maintenance Data Computer (MDC) can provide aircraft checklists. The MDC uploads the checklists from a diskette and stores the information in memory. There is a Preamble page which requires acknowledgement by the pilot, and up to four other types of checklists. The possible checklist types are Normal, Abnormal, Emergency, and User. All checklist types that are available show on the Checklist Index. Checklist control is via the CCP buttons and joystick. The Checklists display on the upper half of the MFD.

NOTE

Checklists must be generated off-line on a personal computer. On-aircraft capability to create, edit, or delete checklists does not exist. The computer must be able to run Windows 95™ (or later versions) and be able to either write to a 3.5 floppy disk or interface with a 3.5 floppy disk drive. The combined size of the Preamble, Normal, Emergency, Abnormal, and User checklists can be up to 256K.

▼ SELECTIONS:

Checklist Items

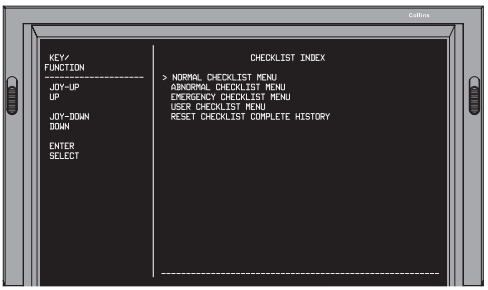
Push the CKLST button on the CCP to show the Checklist Index page.

NOTE

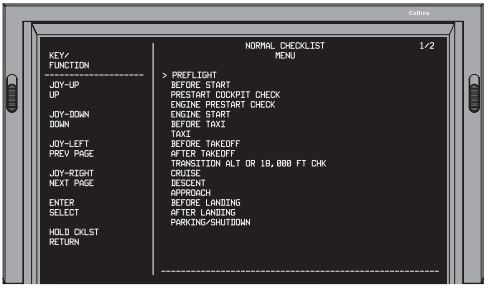
When an incomplete checklist was showing when the Checklist mode was exited, that checklist shows the next time the Checklist mode is selected.

NOTE

When a Normal, Abnormal, or Emergency Checklist Menu is selected, the Preamble page shows on the MFD. To acknowledge the Preamble page, push the ENTER button.



TPH5382_60



TPH5382_61

- Use the joystick to move the cursor up and down on the Checklist Index page to highlight a Checklist Menu. To select a Checklist Menu, push the ENTER button on the CCP when the desired Checklist Menu is highlighted.
- To set all checklist items to unchecked, operate the joystick to highlight the Reset Checklist Complete History line item. Push the ENTER button to set all checklist items to unchecked.
- Use the joystick to move the cursor up and down on the Checklist Menu page to highlight a Checklist Title. To select a Checklist, push the ENTER button on the CCP when the desired Checklist Title is highlighted.

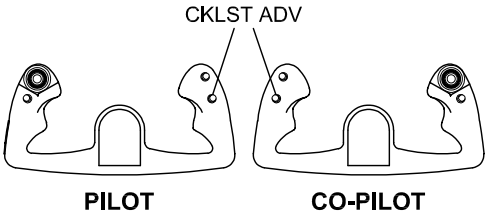
NOTE

When a Checklist Menu uses more than one page, the joystick provides the control to view all of the pages. Operation of the joystick to the left selects the previous page. Operation of the joystick to the right selects the next page.

- With a checklist showing, push the ENTER button to check off an item on the list and move the cursor down to the next item. To skip an item, push the SKIP button on the CCP.
- Push the ENTER button to check off an item and move the cursor to the next item. The checked-off item changes from cyan to green. The next checkable item on the checklist changes from white to cyan to indicate it can now be checked off.
- Push the SKIP button to skip an item. A skipped item changes from cyan to white to indicate it has been skipped and the cursor moves to the next checkable item. When a checkable item is the last item on a checklist, the SKIP button has no effect.
- To make a previously checked item an unchecked item, push the ENTER button. The checked item changes from green to cyan to indicate it is now an unchecked item.
- To return to the Checklist Menu from a Normal checklist, push and hold the CKLST button.
- For all other type checklists (Emergency, Abnormal, User), operating the joystick down when the cursor is on the last checkable item causes the display to return to the Checklist Menu page.

NOTE

An optional yoke mounted discrete switch allows for a Line Advance function for the Checklist feature. Pushing the remote yoke CKLST ADV switch is functionally like pressing ENTER while a Checklist is displayed.



TPH6121_01

AFD-3320 FEATURES

Figure 8-67 Graphical Weather Overlay Selections (AFD-3320)

TPI2354_01

The AFD-3320 is similar in size to the AFD-3010E, but operates similar to the AFD-5220E by use of CCP inputs. The AFD-3320 does not have line select keys on its frame. Depending on the aircraft, the AFD-3320 may contain the -105, -106, and -108 software features displayed in the AFD-3010E sections. Refer to the AFD-5220E operation sections for general AFD-3320 operation.

LWR MENU FORMAT (AFD-3320)

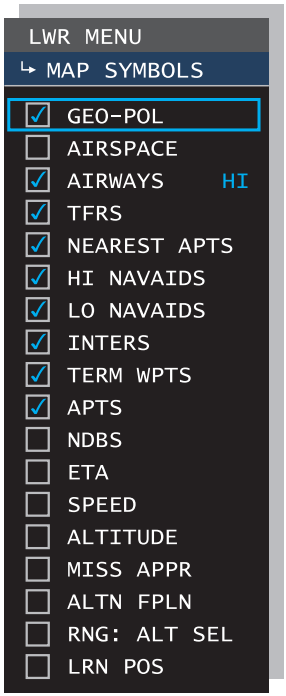
Figure 8-68 LWR Menu, Format (AFD-3320)

TPI2355_01

The Cursor Control Panel (CCP) provides for MFD display control. The CCP displays main menus and associated submenus to control the MFD display. If a button for an optional function that is not enabled is pushed (e.g. CHART) the message SELECTION INACTIVE displays on the MFD. The CCP is used to select display format from the LWR MENU including PPOS, PLAN, GWX, and TCAS. The GWX MENU and L PFD MENU can also be selected on the LWR MENU.

LWR MENU MAP SYMBOLS (AFD-3320)

Figure 8-69 LWR Menu, Map Symbols (AFD-3320)



TPI2357_01

The MAP SYMBOLS menu allows the flight crew to select the back ground information that is displayed on the PPOS and Plan map formats. This includes Nav Aids, Airports, Geo-political boundaries, lakes, oceans, etc. Rotate the CCP MENU ADV knob to move the cyan focus indicator up and down through the list of selections. Push the CCP PUSH SELECT button to select the highlighted feature checked on or off.

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MESSAGES AND ANNUNCIATORS

VISUAL ANNUNCIATIONS

MFD FORMAT QUICK ACCESS MESSAGES

▼ MFD: Message Field:

STORE FAULT	Shows when a fault is detected that prevents the system from storing the current MFD values/states when a CCP MEM1, MEM2, or MEM3 quick access button is pushed.
STORE	Release the button to complete the STORE action. Shows when a CCP MEM1, MEM2, or MEM3 quick access button is pushed for more than three seconds.
STORE COMPLETE	Shows when a CCP MEM1, MEM2, or MEM3 quick access button is released and the current MFD display parameters have successfully been stored.
RECALL COMPLETE	Shows when a recall action is complete.
RECALL FAULT	Shows when a recall action cannot be achieved due to a fault.

MFD DISPLAY MESSAGE WINDOW

▼ MFD: Display Message Window:

FSU FAIL	Shows when a fault is detected in the FSU.
CCP FAIL	Shows when a fault is detected in the CCP.
CONFIG UPDATED	Shows when the FSU configuration is changed. This message is cancelled when the FILE SERVER CONFIGURATION page is in view.
CONFIG ERROR	Shows when the FSU reports that an EAK within the system cannot be recognized in the FSU configuration table, or the FSU Node software part number does not match the one expected by the FSA.

E-CHART CYCLE MESSAGES

▼ MFD: Chart Status Field:

OUT OF DATE	Chart may still be usable, but data may no longer be valid. Use with caution. Shows when the selected E-Chart is out of date.
CHECK DATE	If satellites are not in view (e.g., while the aircraft is in a hangar) move the aircraft to another location. Shows when the system date or time is invalid. The message may appear for a short period of time while the GPS tries to acquire satellites. If loss of system time or date is temporary, message will clear itself once the system has regained the time/date.

E-CHART FAULT MESSAGES

▼ MFD: Message Field:

CHARTS INOP	Shows for three seconds when the CHART, ZOOM, or ORIENTATION button on the CCP has been pushed and the E-Charts application is disabled. This message shows when GWX-5000 is enabled.
CHART FAULT	Shows when the chart data is corrupted or the data cannot be retrieved.
NO CHART AVAIL-ABLE	Shows when no chart has yet to be selected or the previously selected chart was associated with an airport that has been removed from the CHART MAIN INDEX menu, when the Display Chart State is entered.

E-CHART MESSAGES

▼ MFD: Message Window:

PROCESSING REQUEST	Shows when the requested chart is being retrieved.

▼ MFD: CHART MAIN INDEX Page: Charts:

NO CHART COVERAGE AVAILABLE	Shows when the origin, destination, alternate, or other airport is not covered by the regions contained within the current chart subscription.

▼ MFD: NOTAM Page:

PROCESSING REQUEST	Shows when the requested NOTAM data is being retrieved.
NOTAM DATA FAULT	Shows when the requested NOTAM data is corrupted or the data cannot be retrieved.

GWX-5000 MESSAGES

▼ MFD: GWX Message Field:

GWX FAULT	Shows when the GWX data is corrupted or the data cannot be retrieved.
NO IMAGE AVAILABLE	Shows when the GWX only mode is selected and: • No GWX image has been selected yet • The previously selected GWX image is no longer available • There are no images for display.
PROCESSING REQUEST	Shows when the system is retrieving a requested image.

GWX-3000 MESSAGES

▼ MFD: GWX Message Field:

GWX FAULT	Shows when the GWX data is corrupted or the data cannot be retrieved.
SUBSCRIPTION EXPIRED	Move the aircraft out of the hanger. Shows when one of the items that follow occurs: • Shows when the datalink receiver indicates that the aircraft owner's subscription to datalink weather products has expired. • Shows when the XM Receiver does not receive a valid satellite signal at power-up (e.g., while the aircraft is in a hangar). Without satellite reception the XM Receiver is unable to authorize an XM Weather subscription. The message clears when the XM Receiver receives a valid satellite signal and completes subscription authorization processing.
SIGMET OVER-LAY INCOMPLETE CHECK TEXT	Shows when the SIGMET overlay is selected and the graphical plot data for a specific SIGMET is not received by the datalink. NO GRAPHICAL DATA shows in the Weather Report sub-heading for the associated SIGMET.

▼ MFD: SIGMET Report Page:

NO GRAPHICAL SIGMET	Shows in the upper right corner of the SIGMET Report page when no graphical SIGMET data is available.

▼ MFD: Graphical Weather Menu:

ACQUIRING IMAGES	Shows in the ANIMATED NEXRAD, WINDS ALOFT (-108), and SATELLITE (-108) selection box(es) on the GRAPHICAL WEATHER menu when images are not available. The menu cursor indicator skips over the ANIMATED NEXRAD, WINDS ALOFT (-108), or SATELLITE (-108) selections when images are not available.
AVAILABLE	Shows in the ANIMATED NEXRAD, WINDS ALOFT (-108), and SATELLITE (-108) selection box(es) on the GRAPHICAL WEATHER menu when there are images available to display.
AVAILABLE (ALL ALTITUDES)	(-108) Shows in the WINDS ALOFT selection box on the GRAPHICAL WEATHER menu when data is available for all altitudes on the WINDS ALOFT display.

E-MAP MESSAGES

▼ MFD: E-Map Overlay Fault Messages:

AIRSPACE FAULT	Shows when the E-Map data is corrupted or the data cannot be retrieved.
AIRWAYS FAULT	Shows when the E-Map data is corrupted or the data cannot be retrieved.
GEO-POL FAULT	Shows when the E-Map data is corrupted or the data cannot be retrieved.
TFR FAULT	Shows when the E-Map data is corrupted or the data cannot be retrieved.
NO AIRSPACE AVAILABLE	Shows when a condition exists that prevents the proper display of the data.
NO AIRWAYS AVAILABLE	Shows when a condition exists that prevents the proper display of the data.
NO GEO-POL AVAILABLE	Shows when a condition exists that prevents the proper display of the data.
NO TFRS AVAILABLE	Shows when a condition exists that prevents the proper display of the data.
PROCESSING REQUEST	Shows when the requested E-Map overlay is being retrieved.

▼ MFD: GWX Status Messages:

NEXRAD AGE HH:MM (White)	Shows when the requested USA NEXRAD image is available and the image has a valid image time. The HH:MM readout is the age of the NEXRAD image in hours and minutes.

NEXRAD AGE HH:MM (Yellow)	Shows with the age readout in yellow within a yellow box when the product is old. Images are considered old when the current time exceeds the product's next available time by more than 30 minutes.
NO USA NEXRAD AVAILABLE	Shows when the GWX overlay is selected on and there is no USA NEXRAD image stored (no data available).

▼ MFD: GWX Fault Messages:

— — — — (four dashes)	Shows in place of the image age readout when the current time is missing or invalid or the image valid time is not available.
GWX FAULT	Shows when the GWX data is corrupted or the data cannot be retrieved.

DATABASE MESSAGES

▼ MFD: DATABASE EFFECTIVITY Page: Database Messages:

SEE SUBSCRIPTIONS PAGE	Shows in place of the last region listed in the database details window when the number of coverage regions exceeds 10.
NO REGIONS AVAILABLE FOR CURRENT SUBSCRIPTION	Shows in the coverage region portion of the database details window when there are no coverage regions.
CHECK DATABASE STATUS	Go to the DATABASE EFFECTIVITY page to acknowledge the message. Shows in yellow near the bottom of the MFD when a database has been determined to be expired, or a database effectivity cannot be determined (due to the loss of system time). This message will show on every MFD format until it is cleared or acknowledged by viewing the DATABASE EFFECTIVITY page. The message shows only when the aircraft is on the ground.
PROCESSING REQUEST	Shows in the list field when the system is retrieving data for display.
DATABASE EFFECTIVITY FAULT	Shows in the list field instead of list data, excluding FMS NAV data, when a database effectivity fault is reported.

▼ MFD: DATABASE EFFECTIVITY Page: Database Status Messages:

CURRENT	Shows when the associated installed database is current.

NOT CURRENT	Shows when the associated installed database is not current.

SUBSCRIPTION MESSAGES

▼ MFD: CHART SUBSCRIPTION Page: Regions Enabled Messages:

NO REGIONS AVAILABLE FOR CURRENT SUBSCRIPTION	Shows when no chart regions are associated with the subscription serial number.
PROCESSING REQUEST	Shows when the system is retrieving data for display.
SUBSCRIPTION FAULT	Shows when a regions enabled data fault is reported.

▼ MFD: CHART SUBSCRIPTION Page: Chart Subscription Messages:

ACCEPTED KEY	Shows next to the associated access code data entry field when a valid access code is entered.
INVALID ENTRY	Shows in yellow next to the associated access code data entry field when an invalid access code is entered. This message is removed when a valid access code is entered.
PROCESSING	Shows in white when the system is processing access code message data.
CODE FAULT	Shows in white when access code message data is not received.

FSU CONFIGURATION MESSAGES

▼ MFD: FILE SERVER CONFIGURATION Page: Priced Option List Field Messages:

NO PURCHASED OPTIONS	Shows centered in place of the priced option list when no priced option information is available.
PROCESSING REQUEST	Shows when the system is retrieving data for display.
FILE SERVER CONFIGURATION FAULT	Shows when a file server configuration data fault is reported.

▼ MFD: FILE SERVER CONFIGURATION Page: EAK Data Entry Field Messages:

ENTRY DISABLED IN AIR	Shows while the system is airborne. The EAK data entry is disabled when this message is in view.
KEY ACCEPTED	Shows when the entered EAK is valid. Alphanumeric data entry mode is exited upon display of this message.
INVALID KEY	Shows when the entered Software Key is invalid. Alphanumeric data entry mode is exited upon display of this message. The message is cleared when a valid EAK is entered.
PROCESSING	Shows in white when the system is processing software key data.
CONFIG FAULT	Shows in white when data Entry Status Field data is not received.

▼ MFD: FILE SERVER CONFIGURATION Page: Software Update Status Field Messages:

CYCLE FSU POWER TO COMPLETE SOFTWARE UP-DATES	Shows when a valid EAK has been entered, but the associated FSU function has not yet been enabled. The software mismatch message has priority over this message.
FSA / NODE SOFT-WARE ARE INCOM-PATIBLE	Shows when there is a mismatch between the Node S/W part number that is contained in the FSA configuration file (part of FSA load set) and the actual Node S/W part number. This message has priority over the cycle FSU power message.

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IFIS-5000 MENU NAVIGATION

MENU DIAGRAMS (AFD-3010E), (AFD-3320)

The diagrams that follow depict IFIS-5000 menu navigation for the AFD-3010E and AFD-3320. The diagrams are designed to assist the operator with understanding how the system interacts with CCP control inputs and on-screen menu selections:

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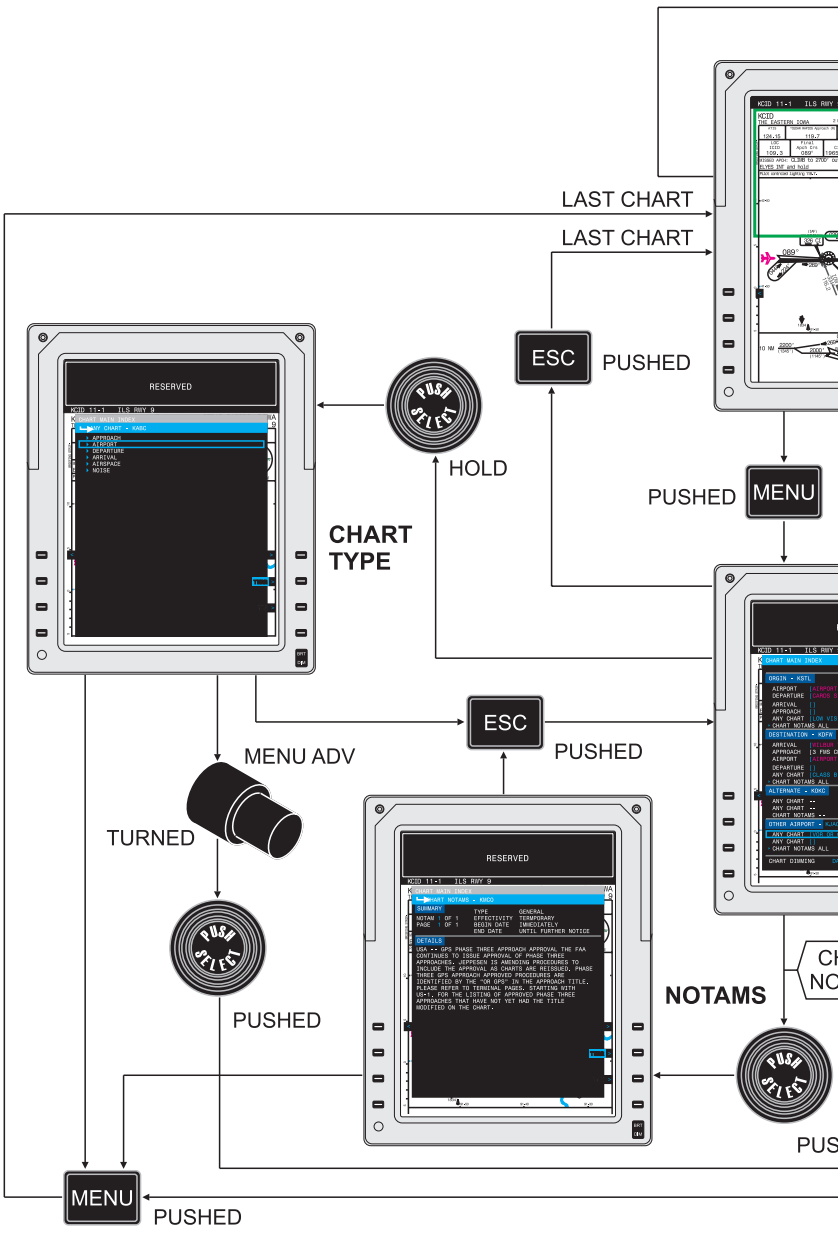
LAST CHART
LAST CHART
ESC
PUSHED
RESERVED
PUSH SELECT
HOLD
PUSHED
MENU
CHART TYPE
ESC
PUSHED
MENU ADV
TURNED
RESERVED
PUSH SELECT
PUSHED
NOTAMS
PUSH SELECT
MENU
PUSHED

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Figure 10-2 Chart Display to Chart Main Index (AFD-3010E), (AFD-3320)

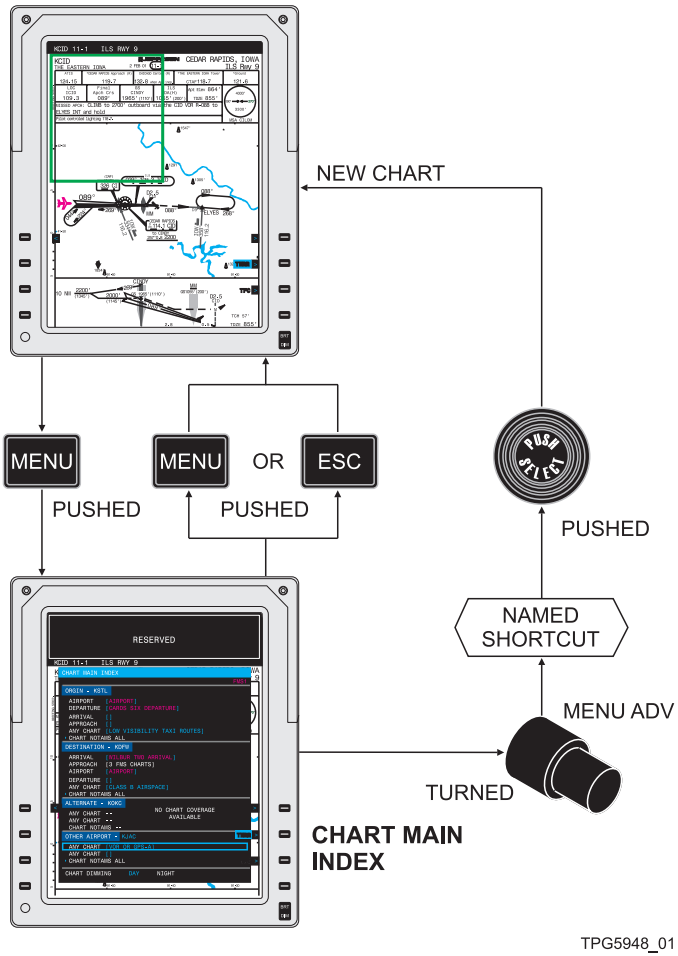
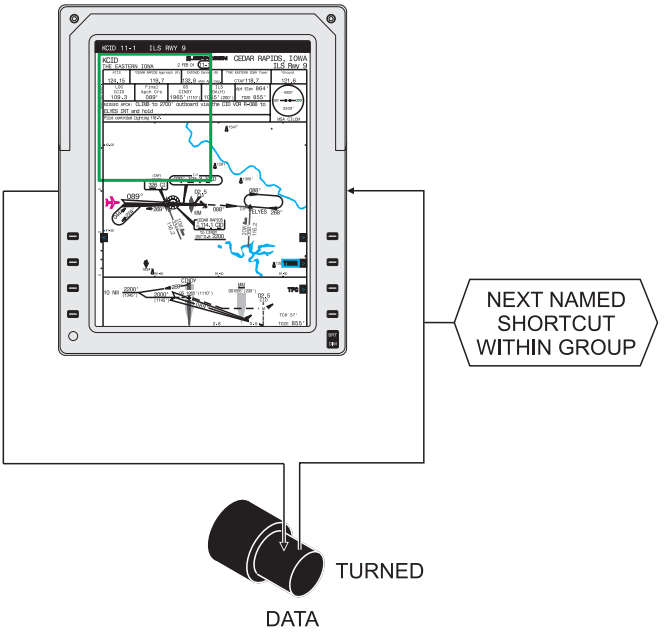


Figure 10-3 Chart Display to Named Shortcut (AFD-3010E), (AFD-3320)



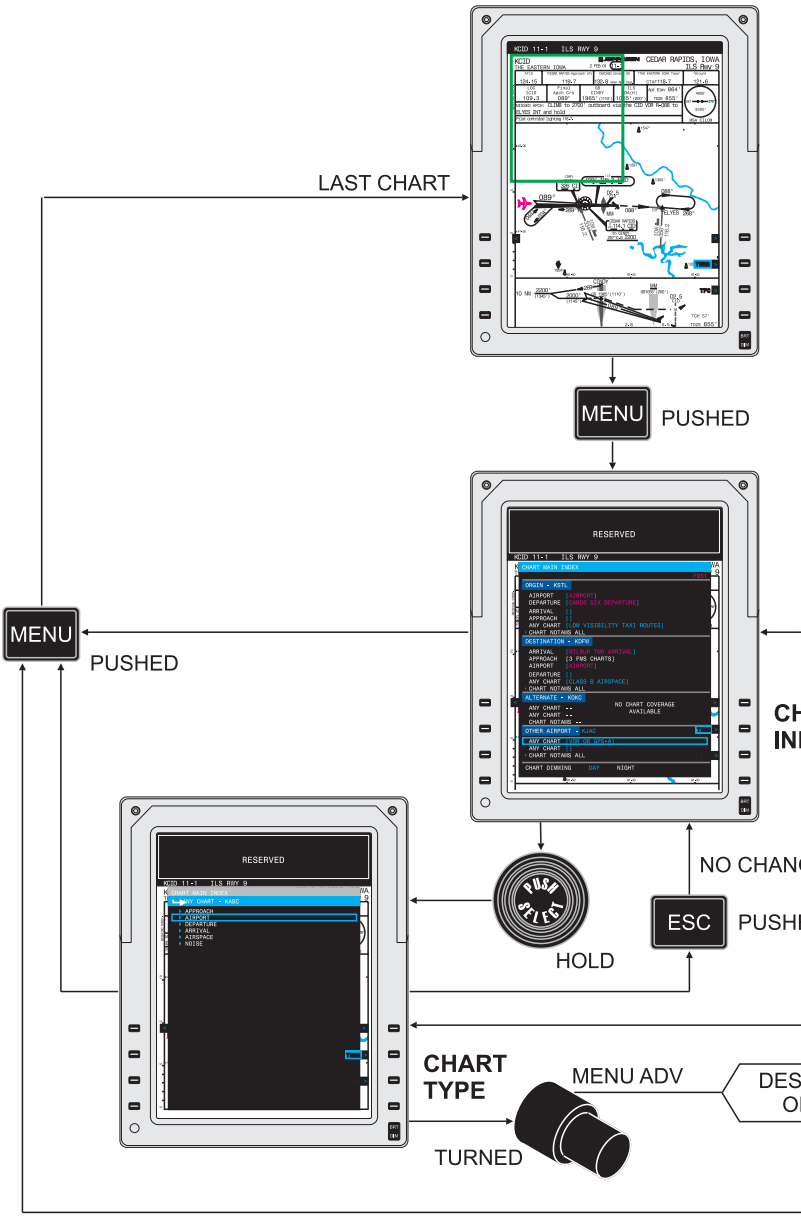

LAST CHART
MENU
PUSHED
RESERVED
MENU
PUSHED
RESERVED
PUSH SELECT
HOLD
NO CHANG
ESC
PUSH
CHART TYPE
TURNED
MENU ADV
DES
O

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Figure 10-5 Chart Display to Chart List (AFD-3010E), (AFD-3320)

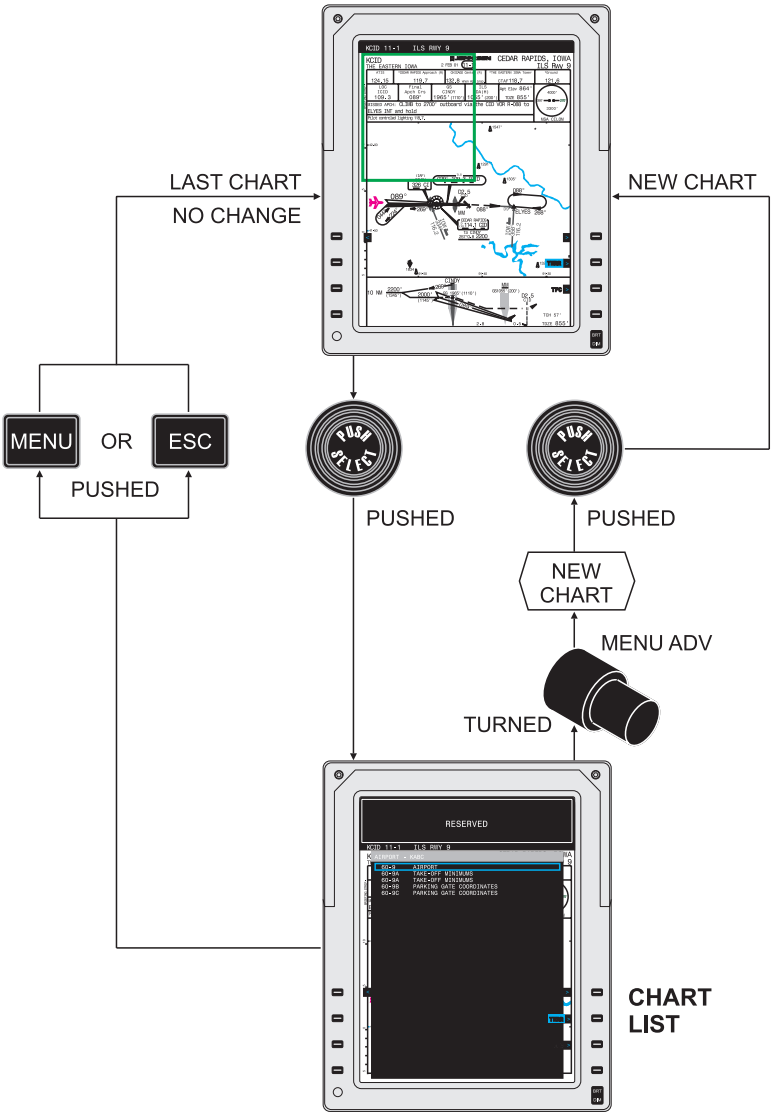
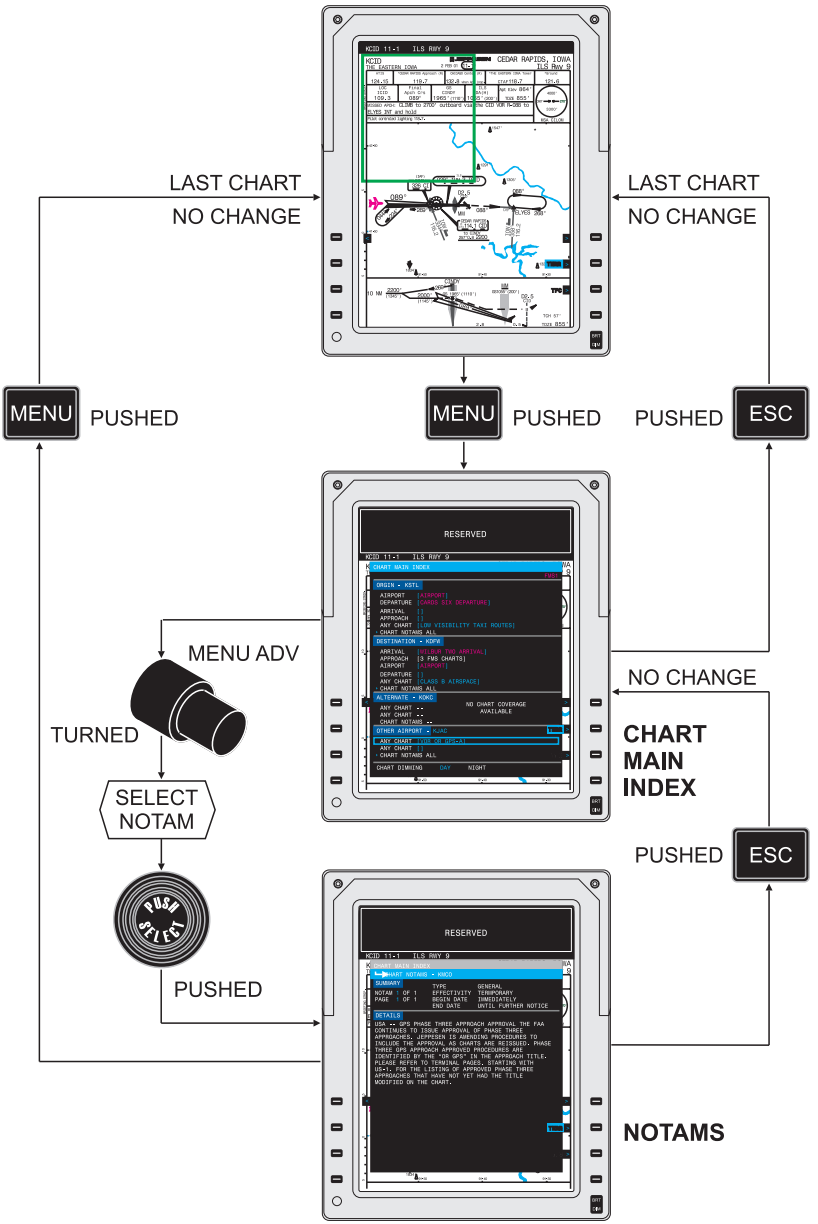
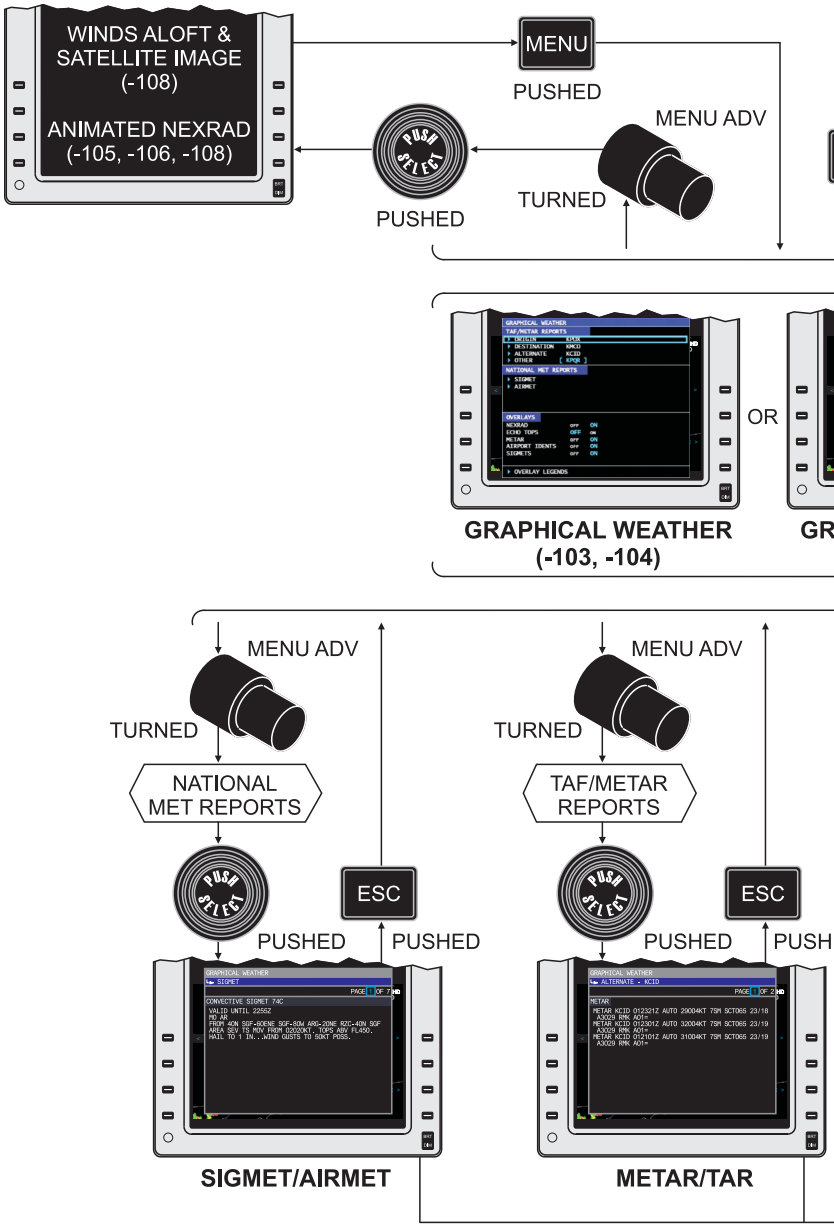


Figure 10-6 Chart Display to NOTAM (AFD-3010E), (AFD-3320)




WINDS ALOFT &
SATELLITE IMAGE
(-108)
ANIMATED NEXRAD
(-105, -106, -108)
MENU
PUSHED
MENU ADV
TURNED
PUSH SELECT
PUSHED
OR
GRAPHICAL WEATHER
(-103, -104)
GR
MENU ADV
TURNED
NATIONAL
MET REPORTS
PUSH SELECT
ESC
PUSHED
PUSHED
MENU ADV
TURNED
TAF/METAR
REPORTS
PUSH SELECT
ESC
PUSHED
PUSH
SIGMET/AIRMET
METAR/TAR

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MENU DIAGRAMS (AFD-5220E)

The diagrams that follow depict IFIS-5000 menu navigation for the AFD-5220E. The diagrams are designed to assist the operator with understanding how the system interacts with CCP control inputs and on-screen menu selections:

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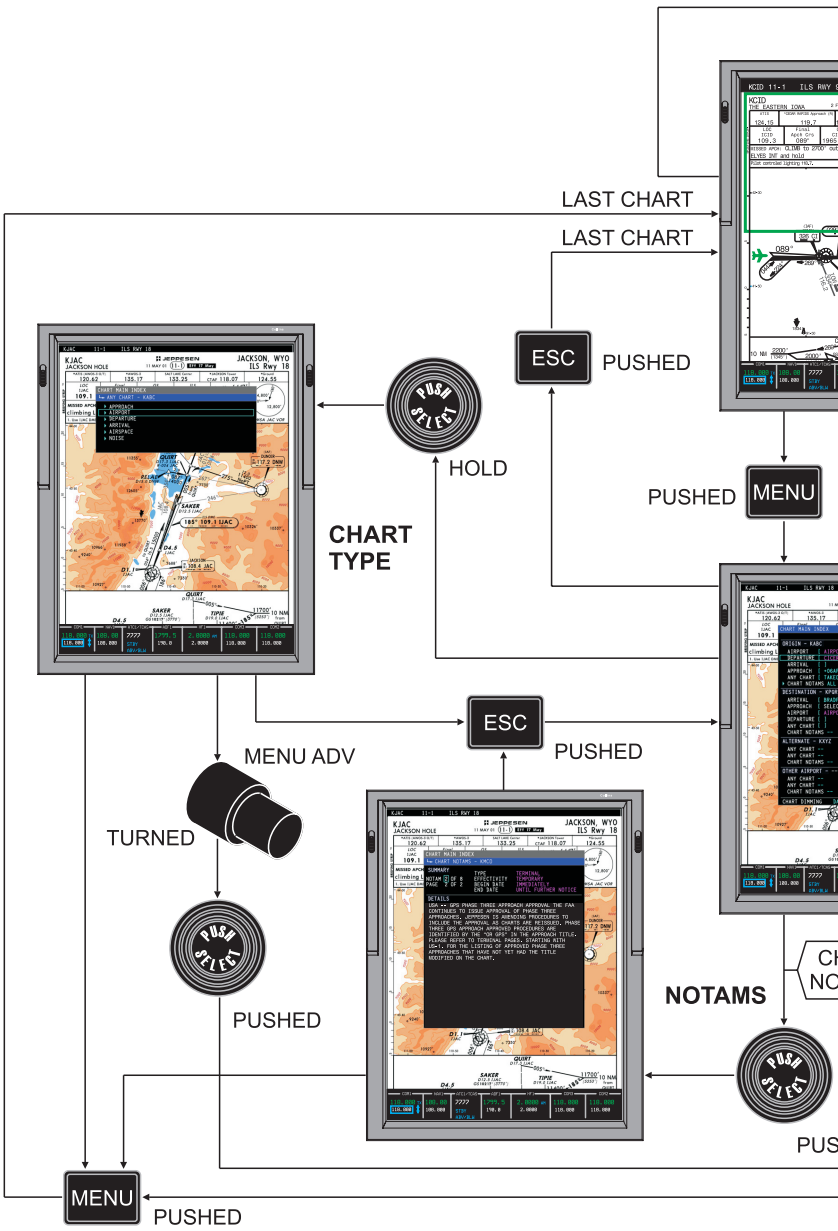
LAST CHART
LAST CHART
ESC
PUSHED
PUSH SELECT
HOLD
PUSHED
MENU
CHART TYPE
ESC
PUSHED
MENU ADV
TURNED
PUSH SELECT
PUSHED
NOTAMS
PUSH SELECT
MENU
PUSHED

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Figure 10-9 Chart Display to Chart Main Index (AFD-5220E)

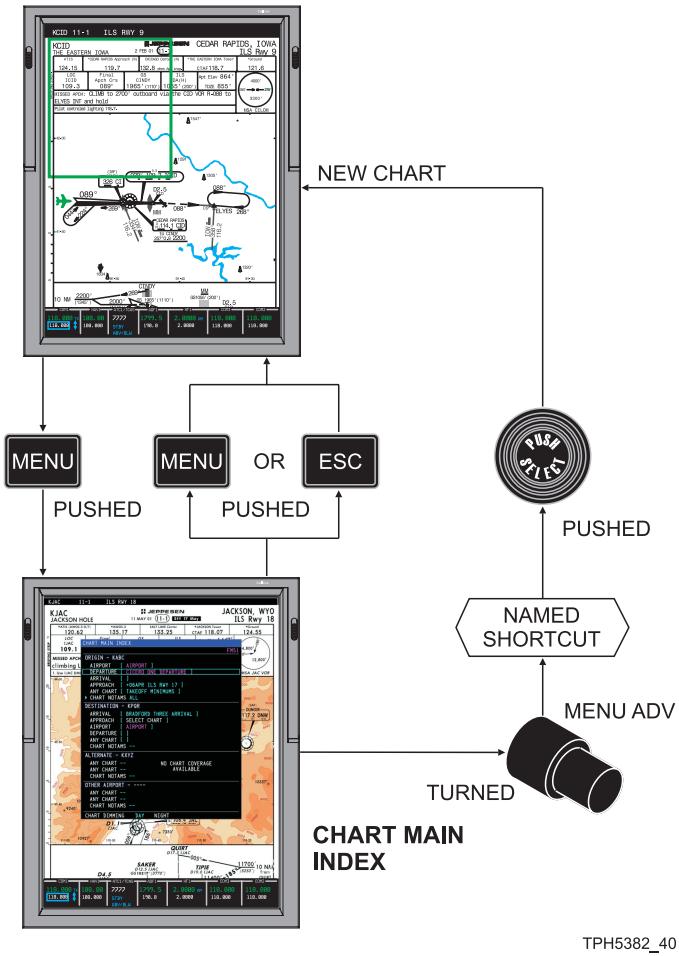
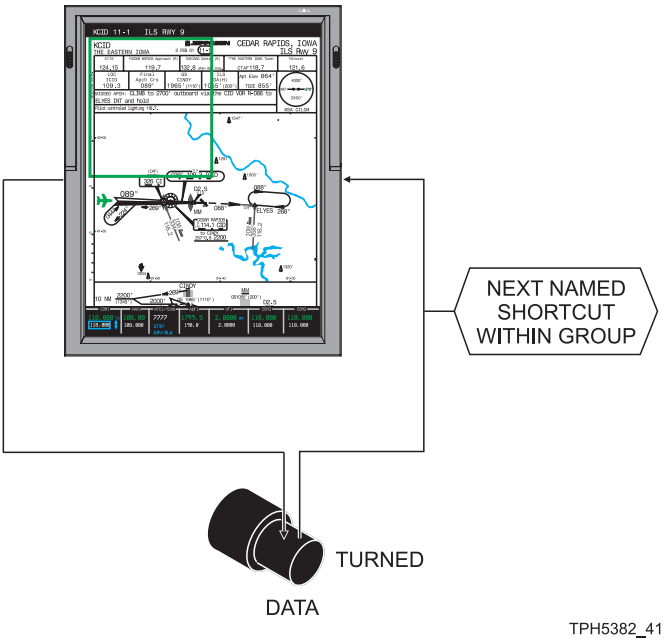
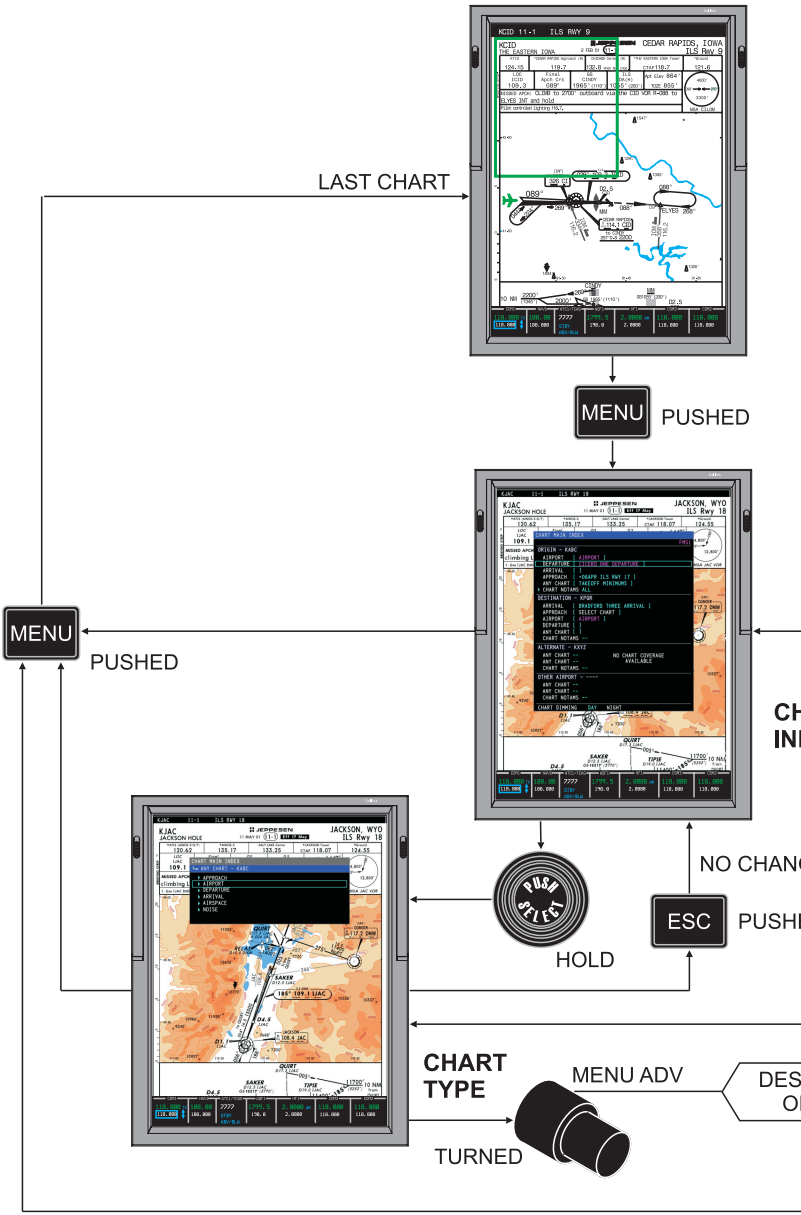


Figure 10-10 Chart Display to Named Shortcut (AFD-5220E)




LAST CHART
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ESC
PUSHE
PUSH SELECT
HOLD
CHART TYPE
MENU ADV
TURNED

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Figure 10-12 Chart Display to Chart List (AFD-5220E)

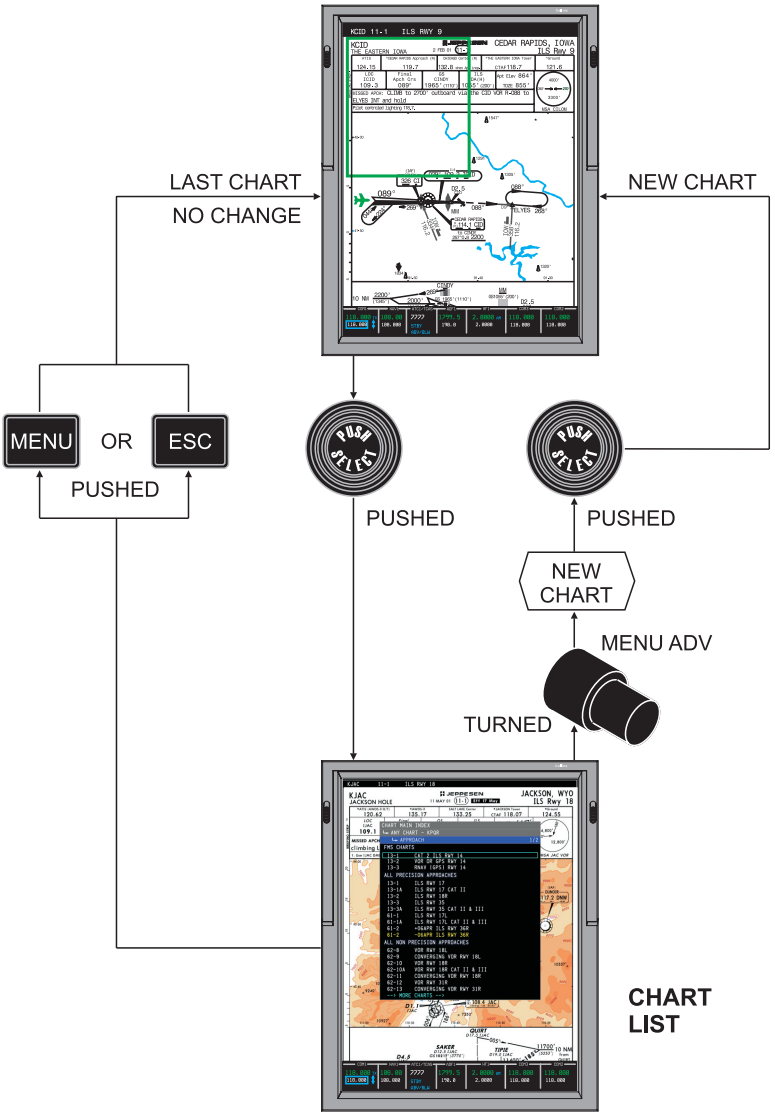
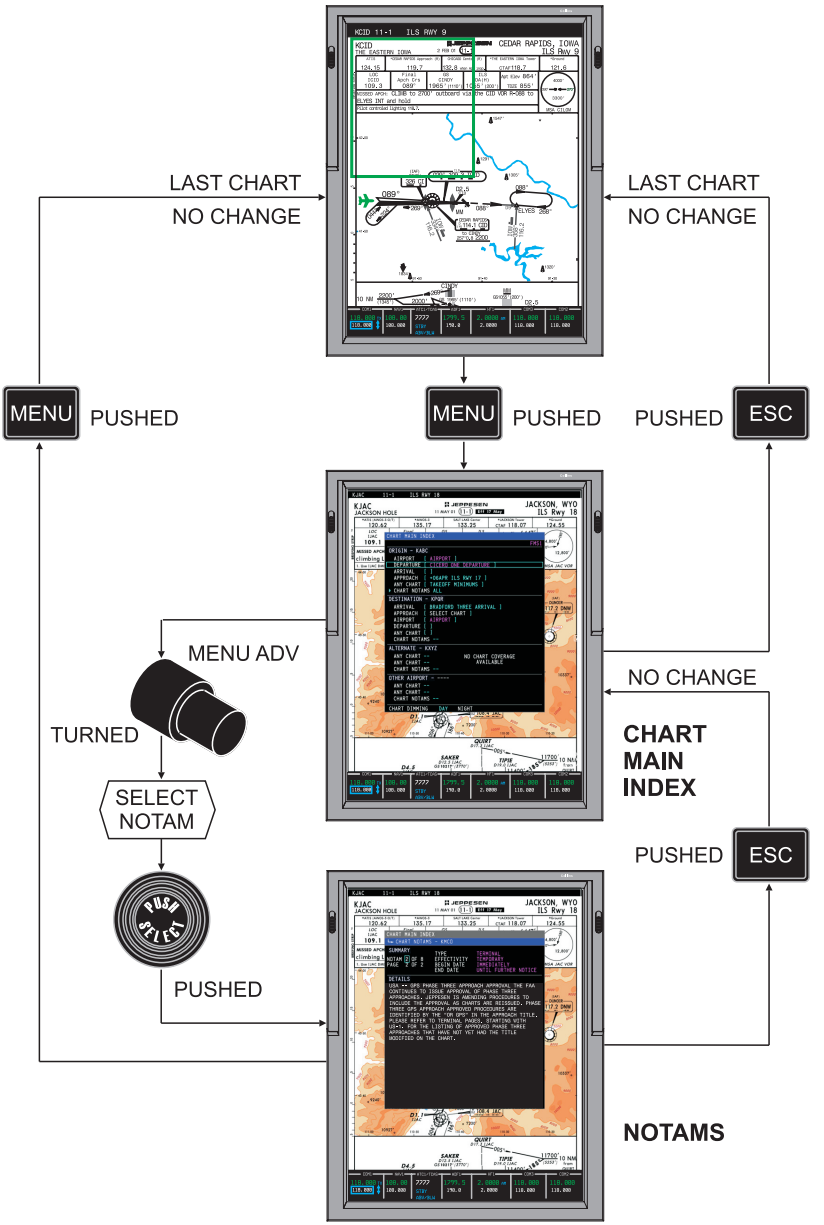
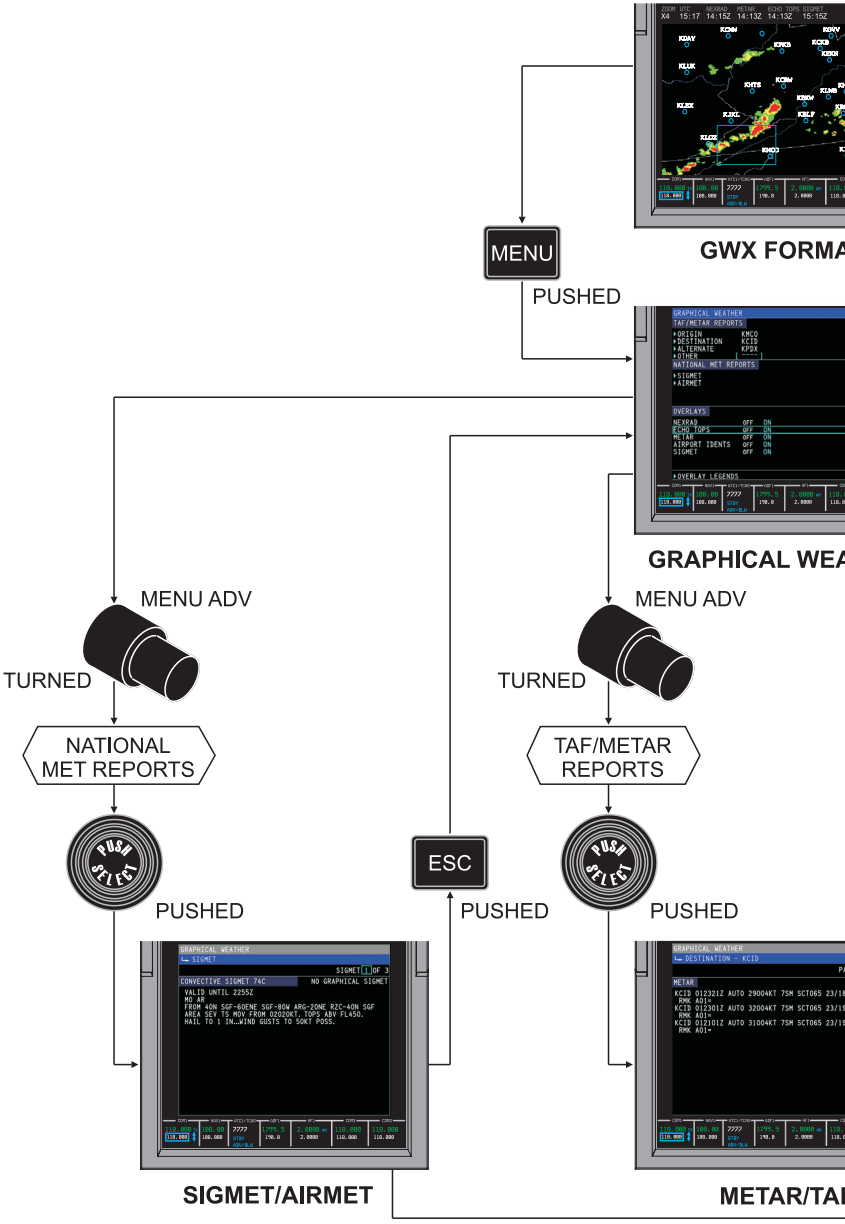


Figure 10-13 Chart Display to NOTAM (AFD-5220E)




MENU
PUSHED
GWX FORMA
GRAPHICAL WEA
MENU ADV
TURNED
NATIONAL
MET REPORTS
PUSH
SELECT
PUSHED
MENU ADV
TURNED
TAF/METAR
REPORTS
PUSH
SELECT
PUSHED
ESC
PUSHED
SIGMET/AIRMET
METAR/TAI

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Support Information

CONFIGURATION INFORMATION

Record the information that follows that was used to configure the IFIS-5000 at the time of installation. This is helpful if customer support is required in the future:

Jeppesen Subscription Number: _____

	Left Side	**Right Side**
FSA Part #		
Charts Key		
GWx Key		
E-Maps Key		
ECU Serial #		

The parameters that follow are needed when using the CDU to configure the CMU-4000 to establish service with the datalink service provider. Refer to the CMU-4000 Installation Manual for more details on how to configure the CMU-4000 system:

CMU Parameters

Configuration for Datalink System in IO TYPE:	CONFIG2
Aircraft Registration # (tail #) in REG NUM:	
Code for Universal Weather in DLNK ADDR	UV
ICAO Address supplied by Universal weather in ICAO ADDR is:	

CUSTOMER SUPPORT INFORMATION

The customer support centers that follow can assist with equipment, database, or subscription problems:

ROCKWELL COLLINS

For questions or comments regarding Rockwell Collins products or services (equipment, navigation databases, enhanced map overlays), contact Rockwell Collins Customer Support.

For product orders or inquires, please contact:

Rockwell Collins, Inc
Customer Response Center
400 Collins Road NE M/S 133-100Cedar Rapids, IA 52498-0001

TOLL FREE: 1-888-265-5467
INTERNATIONAL: 1-319-265-5467
FAX NO: 1-319-295-4941
EMAIL: response@rockwellcollins.com

For navigation database and enhanced map overlay support, please contact:

Rockwell Collins, Inc.
FMS and Database Support Engineering
400 Collins Road NE
Cedar Rapids, IA 52498-0001
TELEPHONE: 1-319-295-5000
FAX NO: 1-319-295-8757
www.rockwellcollins.com/fms

To submit comments regarding this manual, please contact:

Rockwell Collins Services
Rockwell Collins, Inc.
400 Collins Road NE
Cedar Rapids, IA 52498–0001

Attn: Technical Operations M/S 153-250.

EMAIL: techmanuals@rockwellcollins.com

UNIVERSAL WEATHER

For questions or comments related to Universal Weather (GWX-5000) products or subscriptions, contact Universal Weather Customer Support.

Universal Weather and Aviation, Inc.
8787 Tallyho
Houston, TX 77061
TELEPHONE: 1-800-231-5600
INTERNATIONAL: 1-713-944-1622
FAX NO: 1-713-943-4634
EMAIL: sales@univ-wea.com

XM SATELLITE WEATHER SERVICE

For questions or comments related to XM Satellite Weather Service (GWX-3000) products or services, contact XM Satellite Radio Customer Care.

XM Satellite Radio
Listener Care Center
TELEPHONE: 1-800-852-9696

JEPPESEN

For questions or comments regarding Jeppesen products or services (chart subscriptions and databases), contact Jeppesen Customer Support.

Jeppesen
55 Inverness Drive East
Englewood, CO 80112-5498
TELEPHONE: 1-888-553-7750
INTERNATIONAL: 1-303-328-4244
FAX NO: 1-303-328-4124
www.jeppesen.com

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GLOSSARY

Geopolitical Colored lines on chart views that define state and national boundaries as well as geographic features, for example, rivers, lakes, etc.

Linked Charts The IFIS-5000 automatically links, or makes available for convenience of selection, E-Charts for departure, destination and alternate airports that have been entered into an FMS flight plan.

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