

**Aircraft Electronics Association
(AEA)
Wi-Fi Summit**

**EFB Wireless
Connectivity & Security
Considerations**

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**Federal Aviation
Administration**



Briefing Objectives

➤ **EFB Policy**

- ✓ EFB Security Considerations
 - ✓ EFB “Gateway” System Function
 - ✓ EFB Classes and Approval Process
 - ✓ EFB Type “A” & “B” Software Applications
- ## ✓ **Discussion and wrap-up**



What is EFB Security Policy Today ?

➤ **Future directions on EFB security**

- ✓ The FAA currently does not have specific policy and guidance for EFB system security
- ✓ EFB manufacturers and operators determine security implementations on a case-by-case basis
- ✓ What are the risks associate with EFB system and security ?
- ✓ What is the regulatory basis for EFB security ?
- ✓ Should the FAA develop specific prescriptive policy and guidance for EFB systems or identify general security issues for operators to mitigate ?

Possible EFB System Risk Assessment

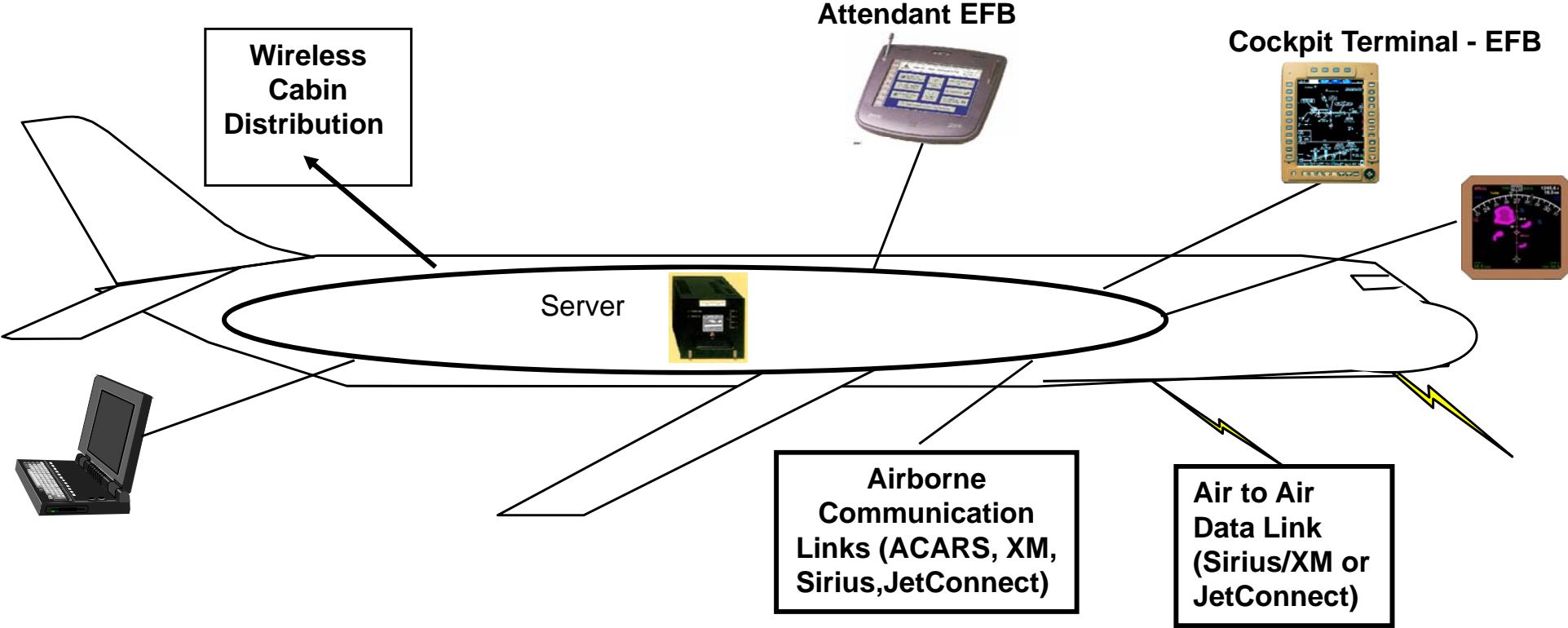
- Risk assessment is used to determine the extent of the potential threat and risk associated with an EFB system throughout its System Development Life Cycle.
- Risk is a function of the likelihood of a given threat-sources exercising a particular potential vulnerability, and the impact of that adverse event on the EFB system and aircraft operation.

- 1) System Characterization
- 2) Threat Identification
- 3) Vulnerability Identification
- 4) Control Analysis
- 5) Likelihood Determination
- 6) Impact Analysis
- 7) Risk Determination
- 8) Control Recommendations
- 9) Results Documentation

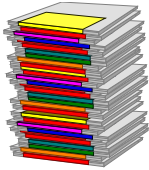
EFB “Gateway” System Functions

- EFB may be used for data communications between the aircraft and the National Airspace System (NAS)
- Primary use for Airline Administrative Communications (AAC)
- Possible to exchange large volumes of information between aircraft and airline operations centers
- Possible to eliminate millions of paper copies

Typical Application & Services



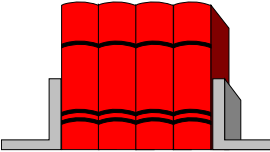
Typical Applications and Services



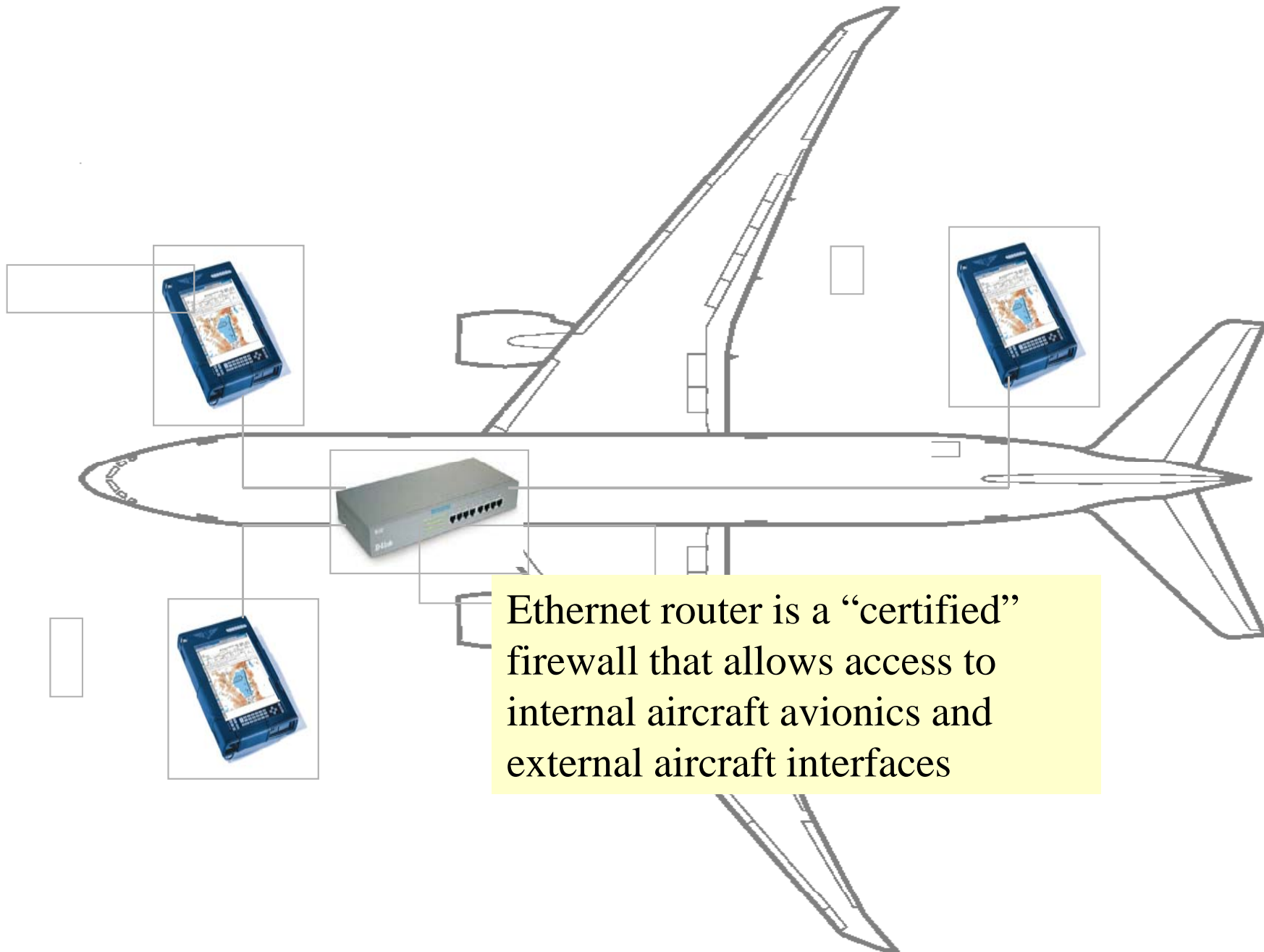
- Flight Ops**
- Weather
 - Electronic Manuals/Charts
 - Cabin Surveillance
 - Surface Moving Maps
 - Flight Papers/Data

- Onboard/Passenger**
- Rebooking/IRROPS
 - Customer Profiles
 - Buy On Board
 - Live Audio
 - Email/WAP Browsing

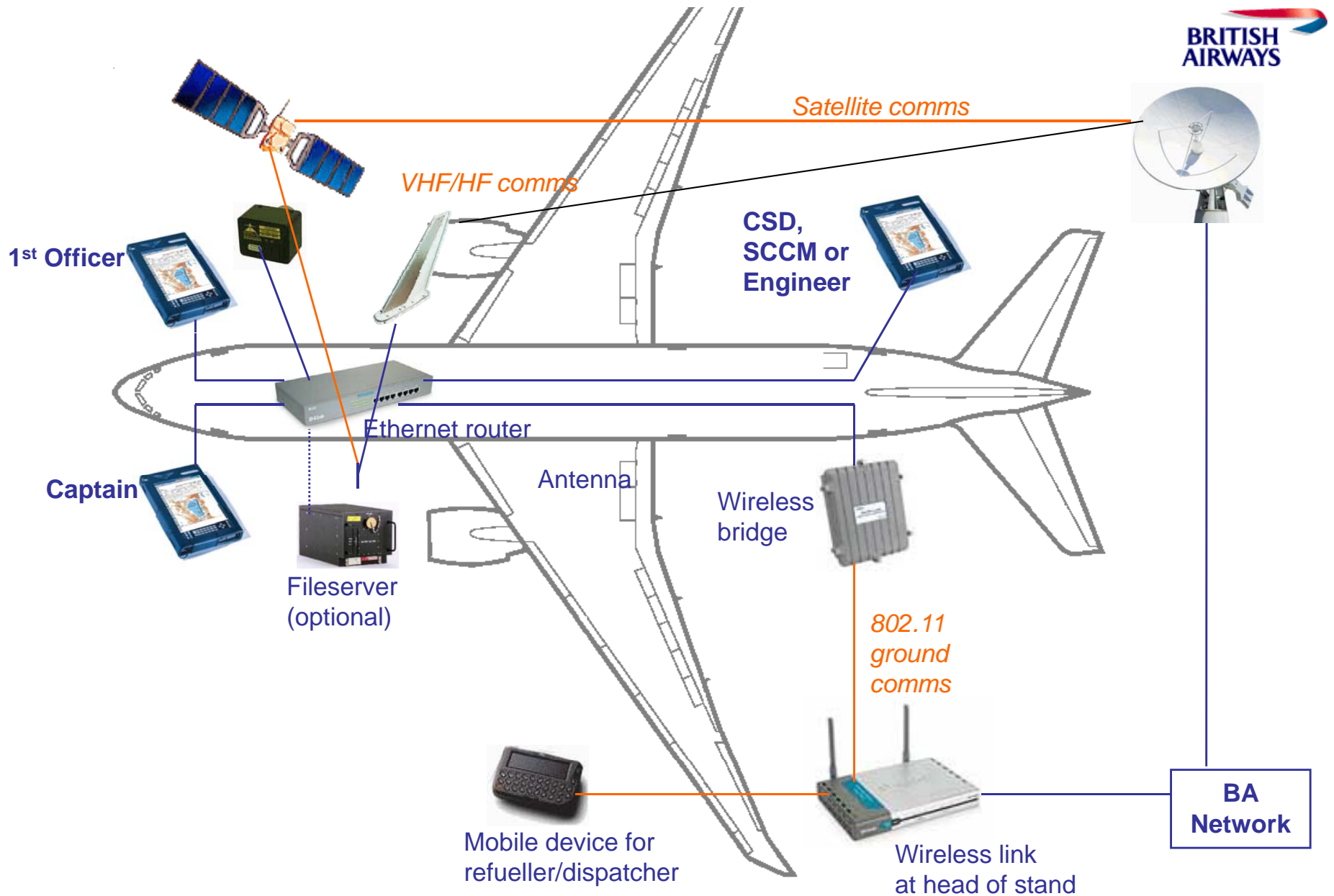
- Maintenance**
- *FIX
 - Flight Data Downloads
 - Electronic Logbook
 - Maintenance Data Collection
 - Electronic MEL



EFB Data Connectivity



Possible Architecture & Infrastructure



EFB Classes and Approval Process

Portable Equipment

Installed Equipment

Class 1

- Portable
- Usable above 10,000 ft. and Airport surface
- Limited by AC 120-76A



Class 2

- Portable devices
- Crashworthy-mounted
- EMI approval required
- All phases of flight
- Ships power
- Read only airplane data
- Video interface
- Limited by AC 120-76A



Class 3

- Installed
- Ships power
- All flight phases
- Datalink
- Interactive Apps
- Video interface
- Increased Functionality



Type A & B Applications

Certified applications

Operations approval

EFB (Type A & B) Applications



OPS CHARTS DOCS TOLD EFB MENU

KJFK / JFK OPS - TKOF OUTPUT RWY: 04/04

INTDN RUNWAY NOTES

VIEW INPUTS

WIND COMPONENTS: 8H/03X KTS PRESS. ALT: -42 FT

ACTUAL WEIGHT: 155096 OBSTL STOP MARGIN: 1283 FT

TAKE OFF

V1	FLP RETR	RWY
146	158	31R
VR	SLT RETR	TO SHIFT
146	208	1250
V2	CLEAN	FLAPS/THS
146	220	1/UP 1.0
TRANS ALT	FLEX TO TEMP	
	52%	
THR RED/ACC	ENG OUT ACC	
1613/1613	1513	
UPLINK	NEXT	
<TO DATA	PHASE>	

SPECIAL PROCEDURE

AWN Radar Mosaic

Region CONUS Radar Mosaic Lightning Airport Conditions Winds Satellite

CONUS Radar Mosaic

Overlay On/Off A/C Symbol Flight Plan Airports Off ADIRTY/SGMCL Wx Data Traffic Terrain

AWN Version 3.44

OPS CHARTS DOCS TOLD EFB MENU

LIBRARY - FLEETS - A320 - CDL - Ch 32 Landing Gear

JETPUBS Inc

32-42-01 Landing Gear - Fan Brakes; Debris Guard

CDL NUMBER	QUANTITY INSTL/RQD	REMARKS OR EXCEPTIONS
32-42-01	4 3	(Maintenance DDG) (Operations DDG) One may be missing provided AFM performance penalties are applied.

MAINTENANCE DDG PROCEDURE

The following Maintenance Procedure is required:

1. Pull brake fan circuit breakers (2 fuses for diabolic).
2. Monitor brake temperature and delay takeoff as appropriate.
3. Apply MEL procedure for dispatch with one tachometer inop. Refer to 32-42 Landing Gear - Main Wheel Brakes.

OPERATIONS DDG PROCEDURE

The following Operations Procedure is required:

1. In OPS - CDL Input Screen - Select 32-42-01 MLG Fan Brakes Debris Guard and input the number of missing guards. This accounts for all AFM performance penalties.
2. Apply MEL procedure for dispatch with one tachometer inop. Refer to 32-42 Landing Gear - Main Wheel Brakes.

32-42 LANDING GEAR - MAIN WHEEL BRAKES

32-42 LANDING GEAR - MAIN WHEEL BRAKES

OPTIONS LINKS TOP RESTORE SIZE

OPS CHARTS DOCS TOLD EFB MENU

"ILS RWY 31R" (APPROACH CHART) SUBCHART (HIDDEN)

KENNEDY (D) 115.9 JFK

315° 111.35 IMOH

OM MEALS DS. 0 JFK RADAR FIX

ZACHS D11.7 JFK

CHANT D19.0 JFK

73-40 CHANT (IAF)

CHART MENU AIRPORT "KJFK" SIDS "KJFK" ENROUTE STARS "KJFK" APPROACH "KJFK"

Aircraft Cabin Surveillance System (ACSS)

MSP Window Cam Fri Jan 4 16:53:30 2002

PLAYBACK MARK

PLAY PAUSE

ZOOM IN ZOOM OUT

FWD - CABIN MID - CABIN AFT - CABIN GALLEY

Camera Not Available Camera Not Available

Page Left... Page Right... Views... Exit...

Electronic Document Browser

The interface features a vertical sidebar on the left with menu items: OPS, CHARTS, DOCS, and EFB MENU. The main display area shows a document titled "ADELAIDE RUNWAY 05" with the following text:

DEPARTURE PROCEDURES - OBSTACLE CLEARANCE DEPARTURE TRACKS TO THE EAST
All engines operating:
 Continue as per SID.
 Clean up height: 3200 ft AMSL.

Below this, there is a section for "AIRSPEEDS (MAXIMUM DESIGN MANOEUVERING SPEED VA)" and a "ZOOM PERCENT" control set to 128%. A technical drawing of a runway cross-section is shown with various dimensions: 2.760, 4.7, 10, 11, 13, 3.50, 4.50, 1.12, 4.75, and 5.25. A numeric keypad at the bottom allows for entering a page number, with "CLOSE" and "ACCEPT" buttons.

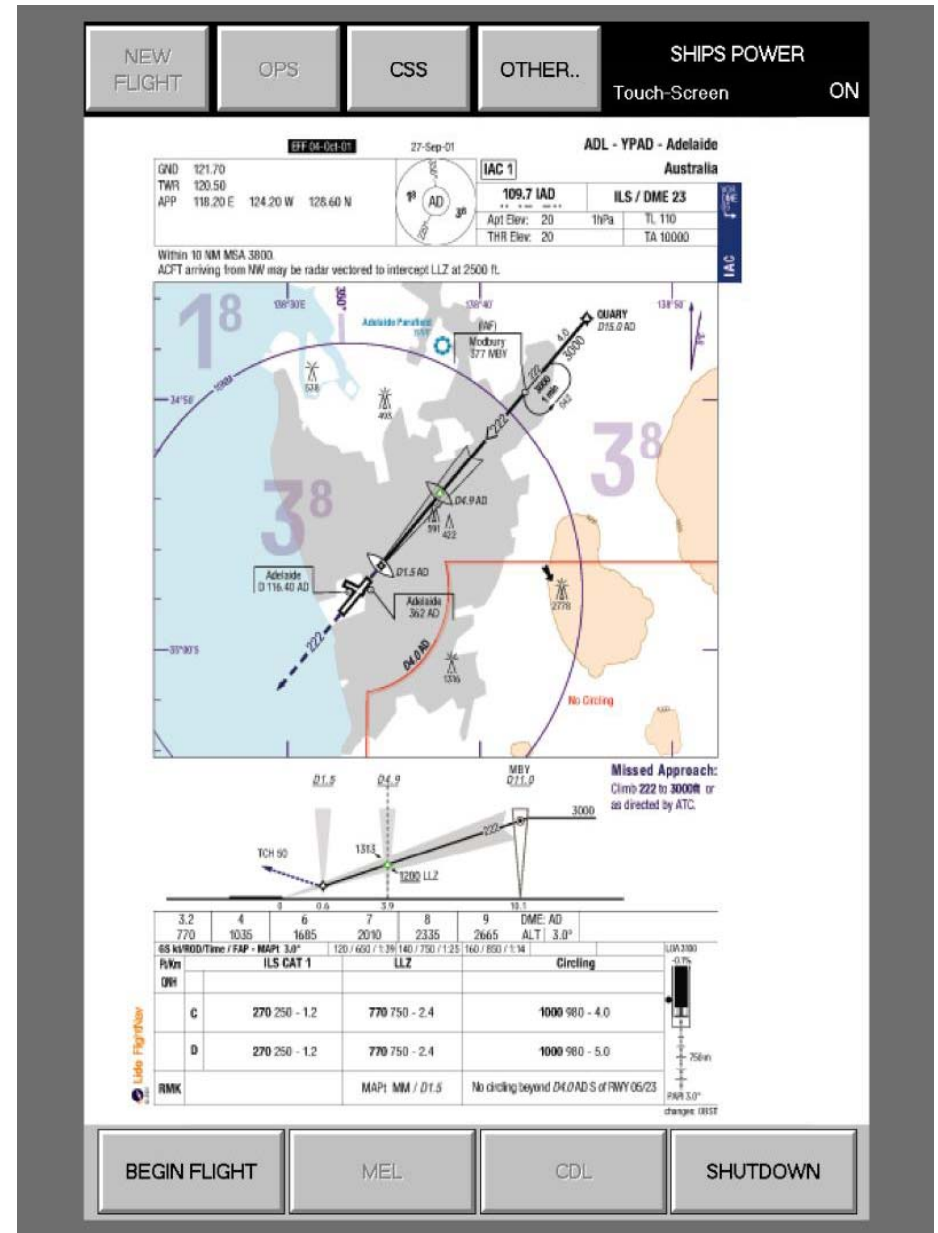
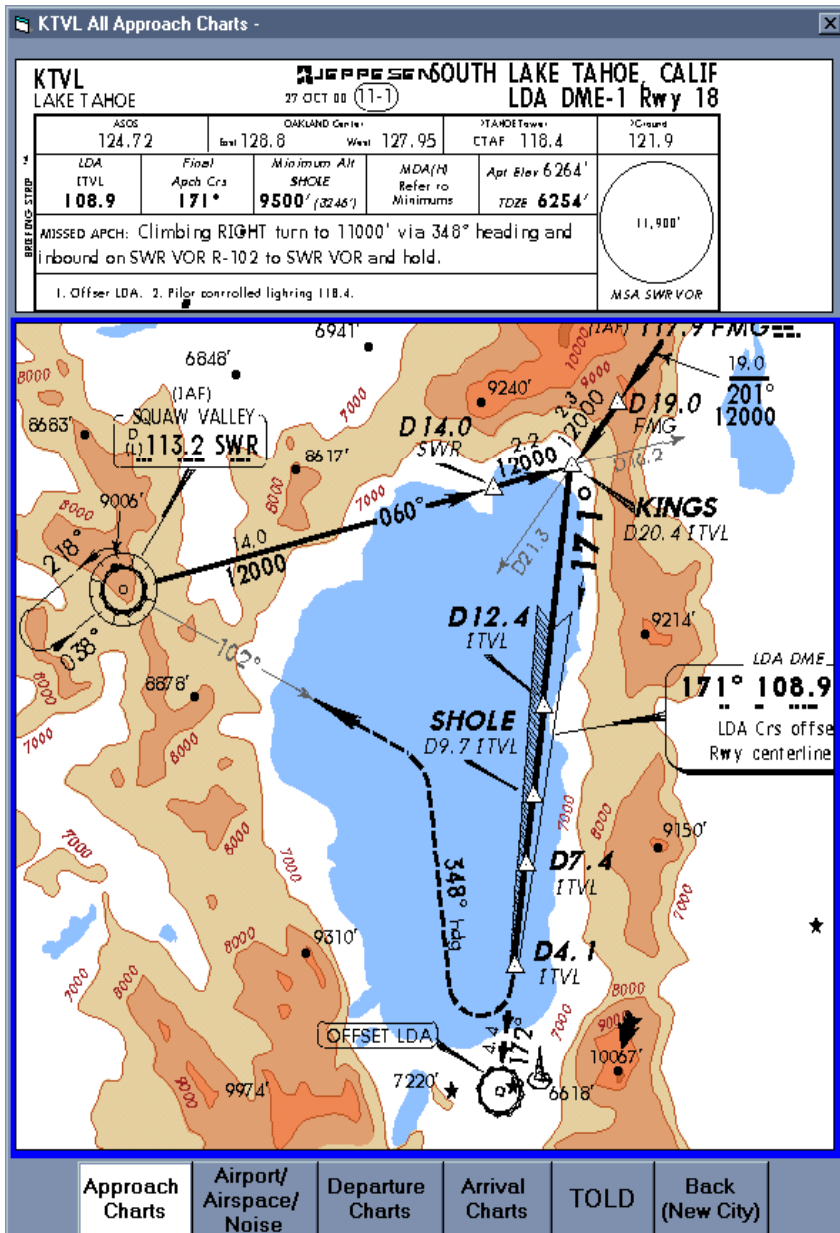


Electronic-Logbook

The process is shown in four stages:

- Cockpit View:** A 3D rendering of an aircraft cockpit with two seats labeled "SEAT". A pink arrow points from the center console area to the next screen.
- Fire Handle Panel:** A diagram of the fire handle panel with three handles labeled "ENG 1 FIRE", "ENG 2 FIRE", and "ENG 3 FIRE". A pop-up menu is open over the "ENG 2 FIRE" handle, listing options: "Fire handle will not engage", "Fire handle light is on", "Fire handle is stuck in the Down position", "Fire handle guard is cracked", "Fire handle guard spring is broken", and "Other". A pink arrow points from this menu to the next screen.
- Log Entry Form:** A form titled "Information Only" with "AML Log Page Number: 125/168". It includes fields for "Event Panel: Fire Handle Panel", "Sub Line: ENG 2 FIRE", and "Failure/Mod Message: Fire handle guard is cracked". It also has radio buttons for "Flight Phase" (Softer Takeoff, Climb, Cruise, Descent, Alt: Landing) and a "Free Text Description" field containing the text: "When standing up, I bumped my hand on the panel and cracked the guard". A pink arrow points from this form to the final screen.
- Aircraft Maintenance Log (AML):** A completed log page titled "AIRCRAFT MAINTENANCE LOG" with fields for "Event ID Number", "Page Number", "Date", "Time", "Location", "Description", and "Remarks". The "Description" field contains the text from the previous form. The "Remarks" field contains the text: "When standing up, bumped my hand on the panel and cracked the guard". The page is signed by "N590FE" and has a "Send" button at the bottom right.

Aeronautical Charts – Access Methodology



Questions

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