



Alaska Airlines
FLIGHT OPERATIONS
CAPTAIN JIM FREEMAN

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ALASKA AIRLINES IT AD
PROJECT

When we started the iPad project at Alaska, everyone wanted to know how much fuel we would save and how light we could make a pilot bag. When business cases are written, those are the sort of justifications we all use. What we really wanted was nothing sort of a revolution in information management. It was time for pilots to get a processor upgrade.

WHY

- The amount of information that pilots are required to reference has grown astronomically over the years
- The weight of a flight bag approaches 30-40 lbs and difficult to stow resulting in CB damage and or the occasional on the job injury
- The aircraft library is increasingly difficult to chase for currency as the airline grows
- The cost savings in fuel use for weight reduction, print costs, bag storage areas and maintenance of computer resource centers are significant
- The ability to greatly improve information delivery and access is enhanced

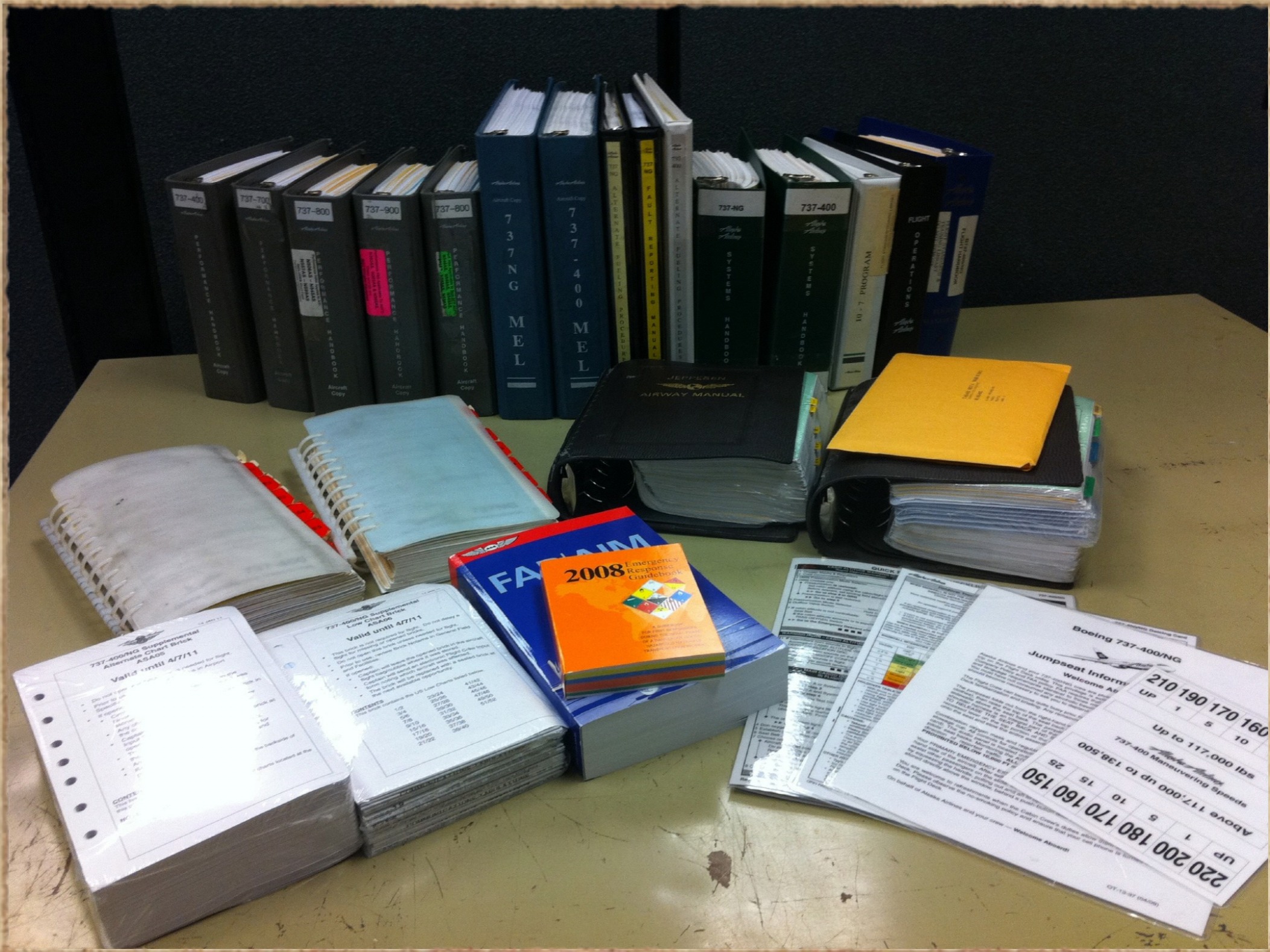
Collision of Agendas

An Overview

- ◆ **Cost Pressures** - Governing authority prefers efficient transportation at low cost to the flying public - they want to keep the economies moving.
- ◆ **Efficiency** - Airlines want faster turn times, shorter maintenance visits, new equipment, lean work rules and market rate employees.
- ◆ **Safety, doing the right thing** - Technology has enhanced our data collection and with it the ability to better analyze our operations. The desire to "fix" any potential shortcoming or proactively prevent any undesired aircraft state enhances safety but puts pressure on training requirements and adds new procedures and sometimes regulations.

- Information management by a pilot is all too often a balancing act performed by a human being without the benefit of technology and subject to human shortcomings. Sometimes the balancing is between time allotted, versus safety errors and/or regulatory infractions.

And The Traditional
Answer
Is



737-400NG Supplemental Airframe Chart Book
Valid until 4/7/11

737-400NG Supplemental Low Cost Brk
Valid until 4/7/11

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FAA
2008 Emergency Response Guidebook

Boeing 737-400/NG
Jumpseat Information
Welcome Aboard

| | | | |
|-----|-----|-----|-----|
| UP | 1 | 5 | 10 |
| 210 | 190 | 170 | 160 |

Up to 117,000 lbs
737-400 Maneuvering Speeds

| | | | | | |
|-----|-----|-----|-----|-----|-----|
| UP | 1 | 5 | 10 | 15 | 25 |
| 220 | 200 | 180 | 170 | 160 | 150 |

Above 117,000 up to 138,500
000 up to 138,500

PROHIBITED BELOW 10,000 ft

On behalf of Alaska Airlines and your crew - Welcome Aboard

Information Management Challenges

- ◆ The Paper
- ◆ Keeping a Mobile Work Force Engaged
- ◆ Improving Safety and Business Efficiency
- ◆ Better Compliance
- ◆ User Friendly



The Regulatory Paradigm
Shift

To date EFB really stands for Expensive Flight Bag. Our traditional outlook is an avionics one that disassembles, tracks, certifies and tests everything installed on the aircraft. Guidance has focussed on management of data on the Flight Deck not information management in the broader sense that starts well before and continues after the period of time a pilot occupies a seat using a mobile device.

The Challenge

Can we deploy an EFB with operational approval requirements versus airworthiness approvals that allow a refresh of such devices without a complete resubmission, subject to reasonable requirements.

Try not to be traditional avionics but rather an additional layer of mobile information.

Together with several other US Airlines we submitted the following concepts for change to the Draft AC 120-76 B

- ◆ Separation of the securing or mounting of any device from Class designation
- ◆ Predicating Class designation on connectivity to aircraft systems (data/dedicated power)
- ◆ Separating certificated approvals from software and devices that merely manage the existing paper they are meant to replace
- ◆ Software or applications that do not calculate flight critical data and have minor to no effect with failures stay in the operational approval arena
- ◆ Software or connectivity that have more than a minor failure effect require certified approval
- ◆ Securing or mounting in critical phase of flight is not limited to certified or STCd solutions but any solution that passes reasonable retention of mass requirements may be operationally approved if not modifying the physical airframe of any aircraft

Alaska Program

Approval Strategies

- Create Operational Approval process that avoids traditional avionics STC, TSO or Airworthiness process.
- Keep the device cleanly in a Type One, Class B software category with no connectivity to aircraft control or flight management systems
- Create an approval process that allows a set path of minimal due diligence for succeeding models of the iPad. The components of this would be a universal mounting solution, EMI and decompression tests.
- Establish a strategy of back up paths for information needed by pilots
- Keep power demands well within reach of on board device battery initially

Achievable Goals by Priority

- ◆ Electronic Manuals Process
- ◆ Electronic Charting for use in all phases of flight
- ◆ Flight paperwork and weather information
- ◆ Airport moving map for improved situation assessment

Additional Goals - Longer Term

- ◆ On Ship Position Enroute for improved Situational Awareness
- ◆ Limited Internet connectivity Enroute for weather updates
- ◆ Better System Wide Connectivity

Progress to Date
Phase One

- ◆ Distribution and initial device familiarity, maintaining paper manuals as primary was completed this past summer
- ◆ Measurement of progress with iPad test, data collection and random checks completed this past September
- ◆ End of parallel run time with OPSPEC for Class One EFB Type A software
- ◆ Transition to all electronic manuals for pilots begins with removal of Flight Operations Manual and Flight Handbook from pilot bag and file reduction
- ◆ Start reduction of remaining aircraft library content except for the QRH (Emergency Procedures Manual) remaining on board

Infrastructure Support
Phase One

- ◆ Mobile Device Management scheme (Airwatch) allowing appropriate monitoring of content, security protocols and currency
- ◆ Connectivity support in Pilot Resource Centers and Training Center separated from secure company network
- ◆ Backup computers in Resource Centers that allow IOS and basic over the phone Help Desk functions which include device replacement and depot functions
- ◆ WiFi SFTP synchronization process for essential information separate from training material
- ◆ Standardized over the shoulder bags for iPad, Headset, and other required gear.
- ◆ Application council process to allow more nimble deployment of future applications
- ◆ Versioning control process between Flight Operations and IT

MODIFICATIONS TO EXISTING MANUALS SYSTEM

- ◆ Transition to revision only process with Bulletins for items such as Emergency AD or special procedure changeover
- ◆ Revisions at beginning of month with window for understanding changes
- ◆ Enhanced Layout that includes super index, linked revision highlights, search and markup functions, and easy notification of modified manuals to work with the one touch sync update
- ◆ Staying with PDF for the immediate future

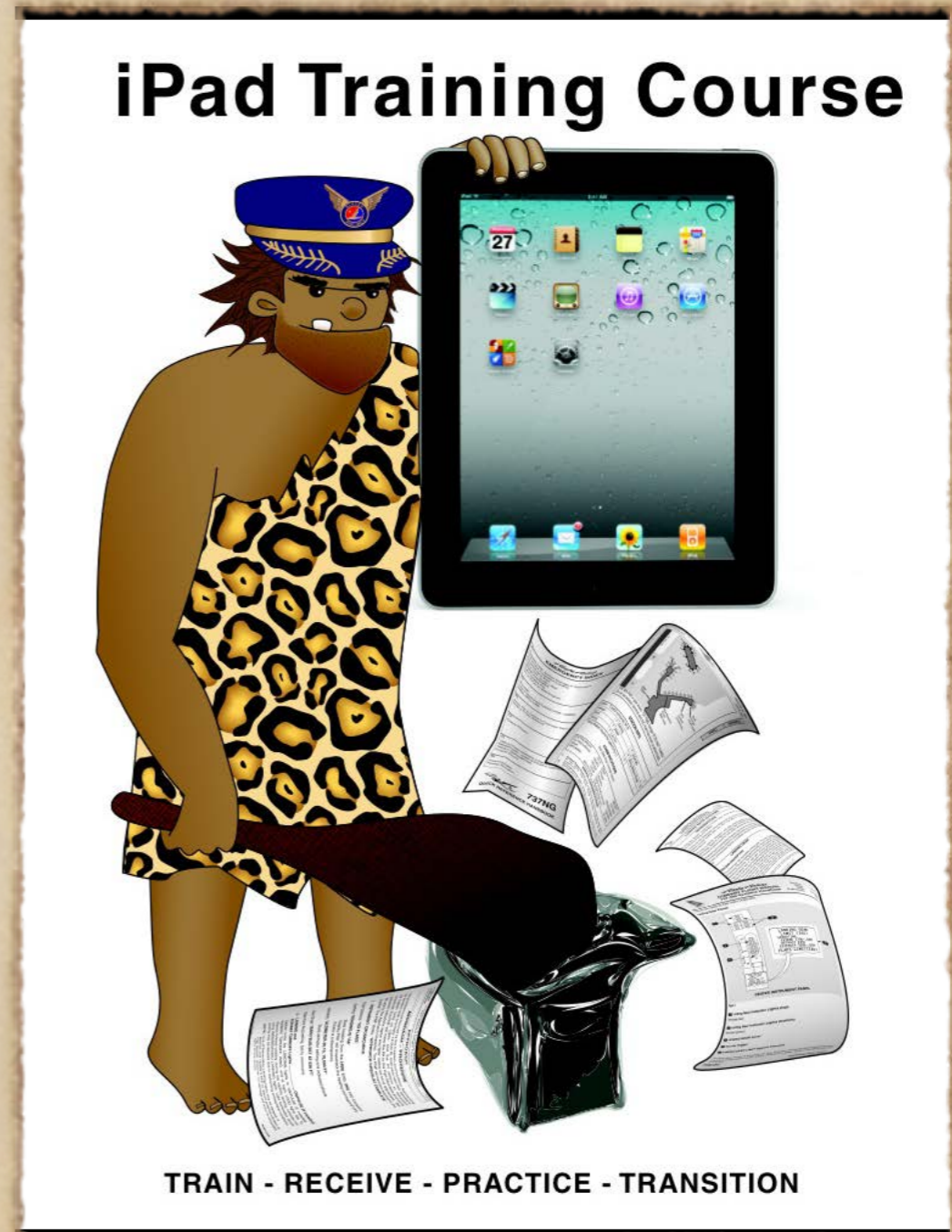
Second Phase Goals

Securing System and App

- ◆ Pursuing a mounting solution that does not alter the structure of the aircraft - temporary
- ◆ Passes retention of mass requirements
- ◆ Does not interfere in any way with flight controls
- ◆ Easily disconnects or slides out of the way for emergency egress.
- ◆ Poses no significant impact to sight lines from Flight Deck

Challenges

- ◆ Ourselves - introducing an apple product into a Microsoft Windows world
- ◆ Security concerns for e-discovery and protection of intellectual property
- ◆ Changing the paradigm for our pilots



Networked vs Mobile

Patches

Pushes

Disc Imaging

Virus Wars

E-Discovery

Proprietary Information

Non Network

Offline

Personalization

No E-Discovery

Flight Operations had opened a Pandora's Box
of IT Security Questions.

Flight Operations just wanted to be small again -
we wanted to find a way to be lean and effective in
new ways-

We wanted to leverage the power of the iPad for
items such as blogs and calendaring off the
network as well as manuals and flight information

Understand the Device and Develop a Security
Strategy that Supports Operational Requirements

Current Primary Applications Deployed

- ◆ GoodReader
- ◆ Jeppesen Mobile Flight Deck
- ◆ WSI Pilotbrief Optima
- ◆ Flashcards

Ground Power Panel and Bus Switching Panel

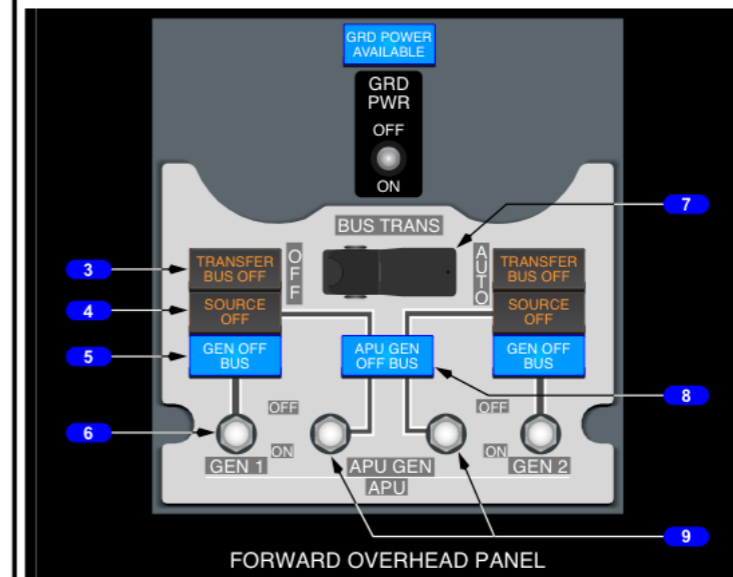
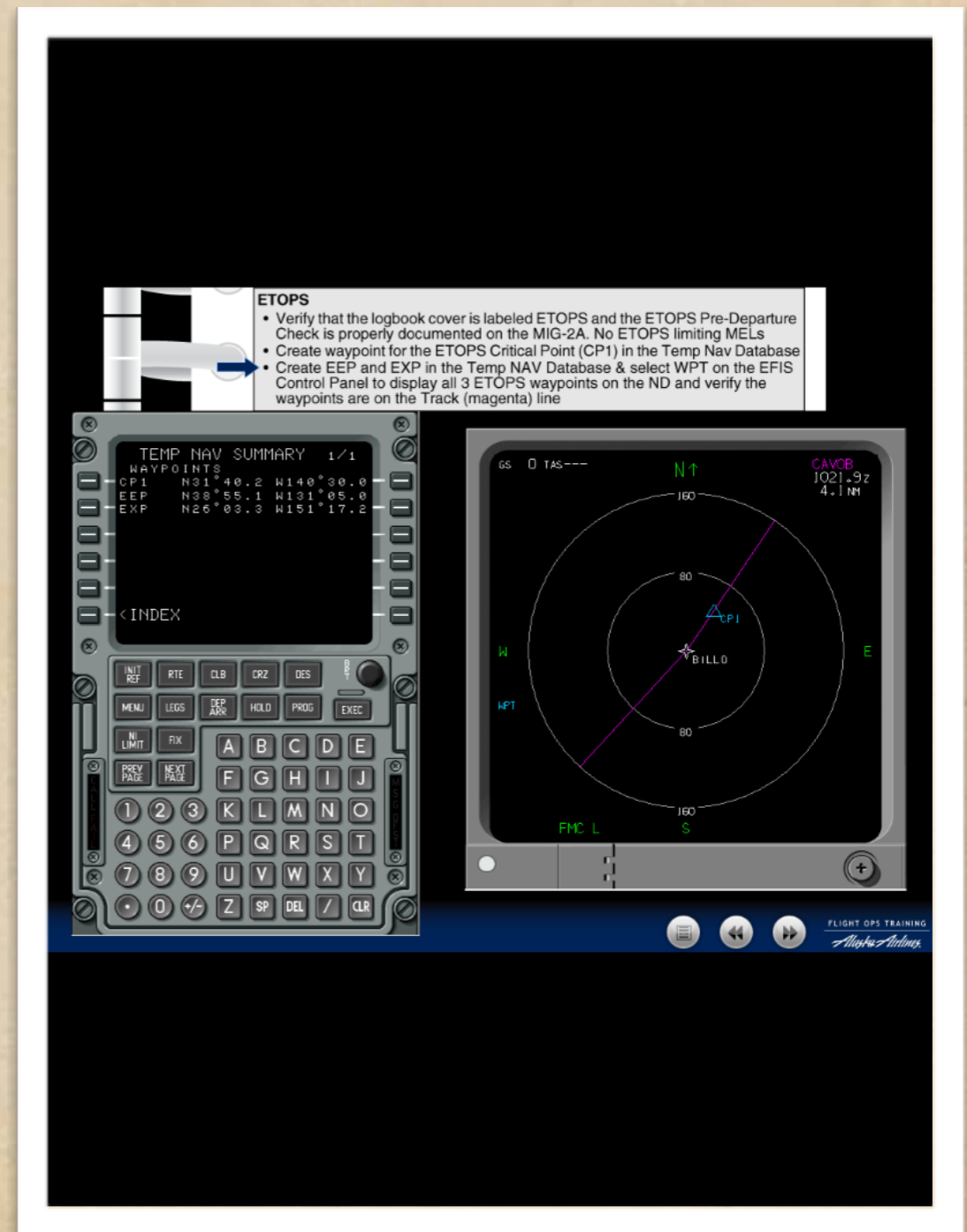


Figure 8

- 1** TRANSFER BUS OFF Lights
Illuminated (amber).
- 2** SOURCE OFF Lights
Illuminated (amber).
- 3** Generator Off Bus (GEN OFF BUS) Lights
Illuminated (blue).
- 4** Generator (GEN) Switches
- 5** BUS TRANSFER Switch
- 6** APU Generator Off Bus (GEN OFF BUS) Light
Illuminated (blue).

Training Deployment

- Currently using Lectora authoring to create HTML iPad friendly courseware
- Shifting to CourseMill LMS for pilot distance learning
- Building a primarily web based training solution that also transports to the iPad



QUESTIONS