The New 787 Airplane and Training Technology

Challenges and Innovations
Configured for Success

787-8 Design Features

- Advanced wing design
- Composite primary structure
- Breakthrough passenger cabin
- Large cargo capacity
- Enhanced flight deck
- Overhead crew rests
- Advanced engines and nacelles
- Innovative systems technologies
Advanced Systems Technologies Provide Value

- Common Core Open Systems Architecture
- More Electric Systems Architecture
- Advanced Flight Controls
- Integrated Health Management
- e-Enabled Systems
New Flight Deck Balances Commonality and Innovation

Digital Flight Deck: Paperless environment with Electronic Flight Bag and ECL

High degree of data and systems integration – e-Enabled, health monitoring

Advanced flight management systems and displays
Commonality With 777

- Similar ETOPS
- Cruise speeds compatible: 787 ECON cruise M0.85
- Flight deck operational and design philosophy are the same
- Autoland and non-precision approaches same
- Flight maneuvers nearly identical
- Same takeoff and landing technique

High degree of procedural commonality
e-Enabled Vision — A Glimpse

Invoke the power of integrated information and communications systems to drive operational efficiency, enhance revenue, and improved travel experience.

- Protecting and Connecting....
- Major benefits for passengers and crew

Airplanes are always connected, sending and receiving valuable information

- Real time monitoring...
- Predictive rather than reactive

- Increased revenue
- Improvements in airline operational efficiency
- Travel Experience

A Network-Centric Air Transportation System
Training Challenge

Develop a new, ground-up training approach that takes advantage of and compliments:

- Airplane design and technology
- e-Enabled and digital technology
- Respect for the environment
New Training Technology
Inspired by the Airplane

• Simulation-Based Training
  – Real airplane and full-flight simulator data drives desktop simulation and Flight training devices
  – Maintenance training brings the virtual airplane into the classroom and uses the same tools and performance data that the mechanic will use on the line

• Flat Panel, Touch Screen trainers in lieu of Fixed-Base Simulators
e-Enabled and Digital Technology

- Web-managed, distance learning
- Real-time, current airplane performance support data
  - Toolbox on MyBoeingFleet.com
  - Performance Data
  - Just-in-Time Training
- Paperless training environment
  - Enhanced technical data for training (FCOM<sup>e</sup>, FCTM<sup>e</sup>, DDG<sup>e</sup>)
The fundamental goal of an EPSS is to provide assistance in learning and in performing a set of tasks.

“The goal of an EPSS is to provide whatever is necessary to generate performance data... and learning when needed.”
787 Maintenance Training

Will train mechanics on the EPSS (electronic performance support systems) that will be available for the 787 at the gate and in the hangar.

- Toolbox will be accessible on the Maintenance Laptop
- Provides linkage of airplane data to support data
  - For example links the aircraft Central Maintenance Computer to Toolbox
Respect for the Environment

An Environmentally Progressive Training System

- Digital Web-managed training and training support products eliminate the need for paper along with the attendant production waste, transportation, distribution, storage, revisions, etc.

- New Student Experience, a paperless innovation

- Simulators that use 80% less electrical energy than current models
  - Low environmental impact hydraulic fluids
Training and Support System
Benefits

- Shorter, more efficient training footprints
  - Five day flight differences training 777/787 with no FFS
  - Distance Learning options to reduce time at the Training Center and prepare students for formal training
  - Maintenance training Line and Base Course is 50% shorter than the 777 L&B Course

- High Quality Training Media
  - Enhanced CBT and Gen Fam with 3-D Graphics, Synoptics and highly interactive

- Enhanced, more useful technical data: FCOMe, FCTMe, DDGe

- Paperless training environment
  - No books

- More efficient pilot and mechanic training with easily accessible support data, 24/7
Training programs and support products that produce and sustain the best qualified pilots, flight attendants and mechanics in the industry

A New World-Class Training Standard
Flight and Maintenance Training at Seven Alteon Locations

- **Minneapolis**
  - March 2008
  - May 2008

- **London Gatwick**
  - May 2008

- **China**
  - April 2008

- **Singapore**
  - March 2008

- **Tokyo**
  - April 2008

- **India**
  - December 2008

- **Seattle**
  - March 2008

787 full-flight simulator locations.
(with two yet to be determined)
Opportunity and Innovation Meet

• Tailored training solutions to match customer requirements
  – More flexible training options
    – Airline can choose from Training Menu
    – Distance Learning options reduce time at the Training Center

• More efficient and effective training footprints

• A new student experience and paperless ways to learn/study

• Support tools to maintain a high level of currency

• Real-time performance support data to maintain the airplane

• An environmentally progressive standard that produces a better trained and more current pilot, flight attendant and mechanic to support safe airline operations