A New Airplane for a New World

Tony Blackner
Senior Manager, 787 Program
Environmental Performance
Environment, Health and Safety

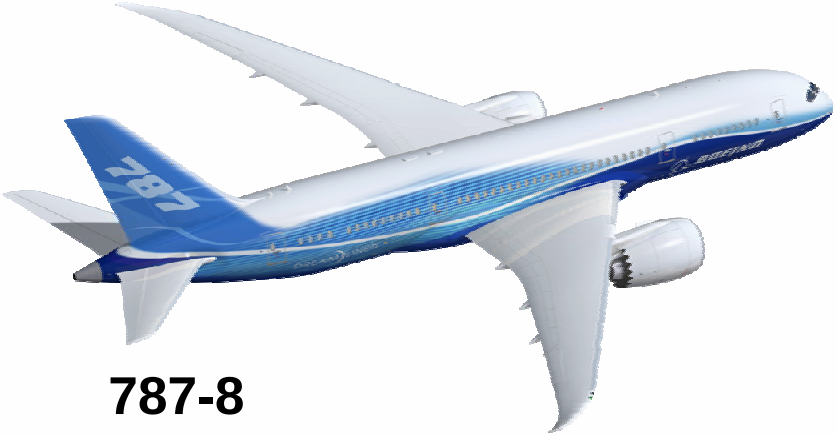
FAA Northwest Mountain Region Airports Conference
22 April 2008, Seattle

Building the Dream

787 DREAMLINER

The 787 Is a Complete, Flexible, Efficient Family

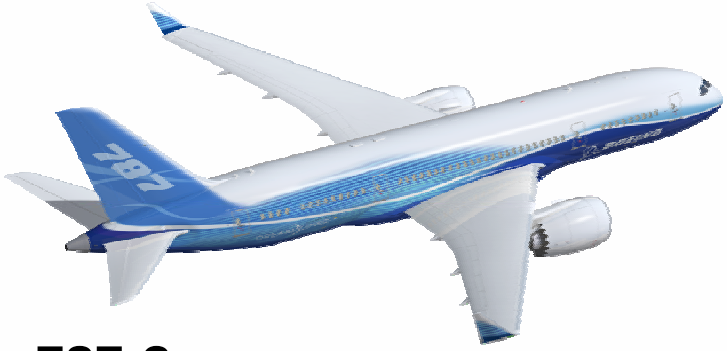
787 DREAMLINER



787-8

210-250 passengers (three-class)

7,650 – 8,200 nmi | 14,200 – 15,200 km



787-3

290-330 passengers (two-class)

2,500 – 3,050 nmi | 4,650 – 5,650 km

787-9

250-290 passengers (three-class)

8,000 – 8,500 nmi | 14,800 - 15,750 km

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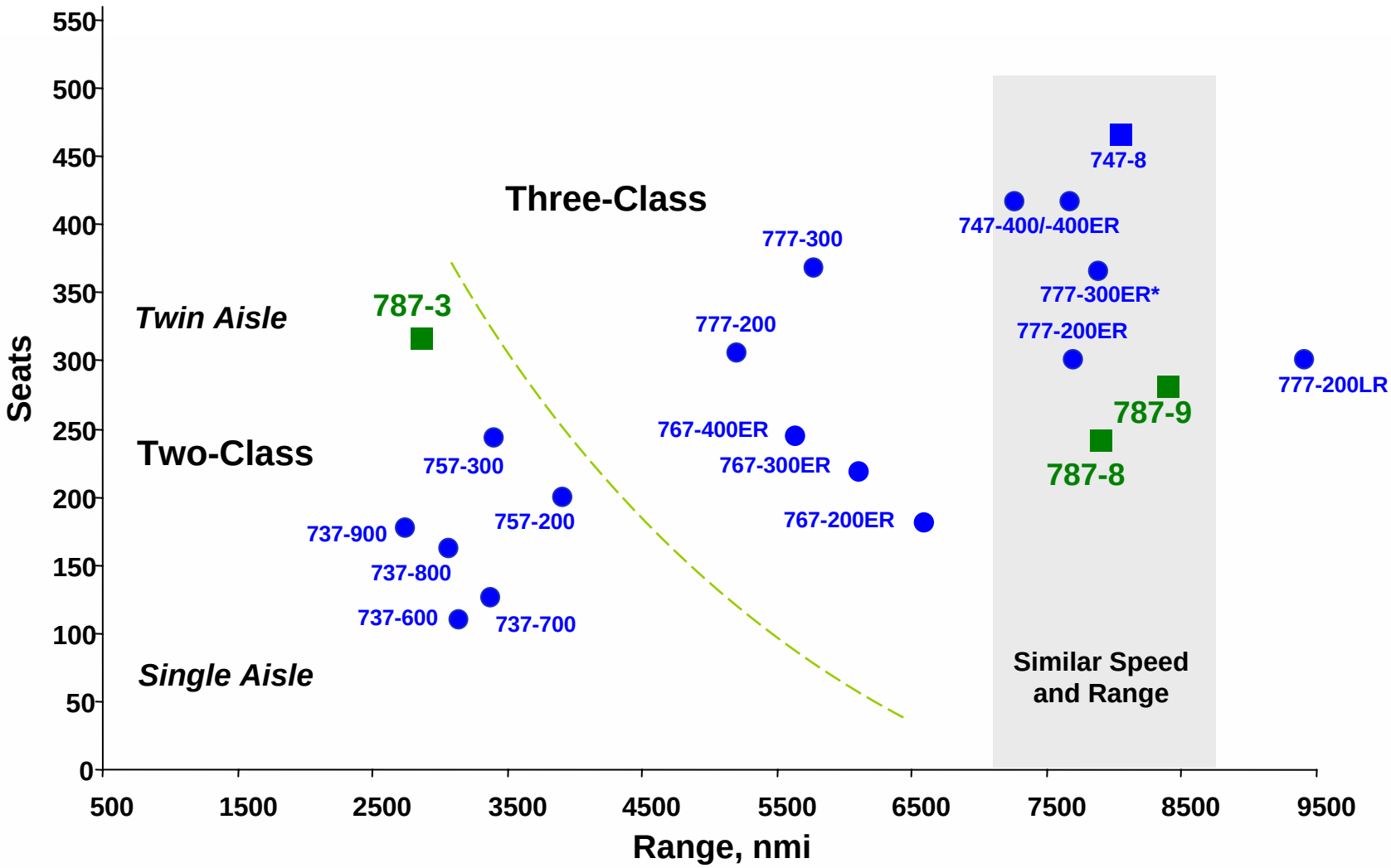
Mission Capabilities Defined, Optimized for Efficiency

787 DREAMLINER



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Point-to-Point Service

Where you want to go, when you want to go

787 DREAMLINER

767-300ER

787-8

- Typical mission rules
- Airways and traffic allowances included
- 85% annual winds

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Lifecycle Commitment to Environment, Health & Safety

787 DREAMLINER

DESIGN	MANUFACTURE	AIRLINE OPERATIONS/MAINTENANCE		END OF SERVICE
Materials Selection Processes Requirements	Energy Labor Chemicals Water Components Raw Materials	Energy Labor Chemicals Water Components Fuel		Energy Labor
	Air Emissions Solid Waste Hazardous Waste Waste Water Factory Noise Hazardous Energy Fall Protection Confined Space Ergonomics	Air Emissions Solid Waste Hazardous Waste Waste Water Fall Protection Ergonomics	Cabin Environment Community Noise Global Warming Airport Air Quality Ozone Depletion Climate Change	Components Solid Waste Hazardous Waste Airplane Fluids

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Configured for Success
787-8 Design Features

787 DREAMLINER

Breakthrough passenger cabin

Advanced wing design

Overhead crew rests

Enhanced flight deck

Advanced engines and nacelles

Large cargo capacity

Composite primary structure

Innovative systems technologies

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Advanced Technology Contributions to 787 Efficiencies

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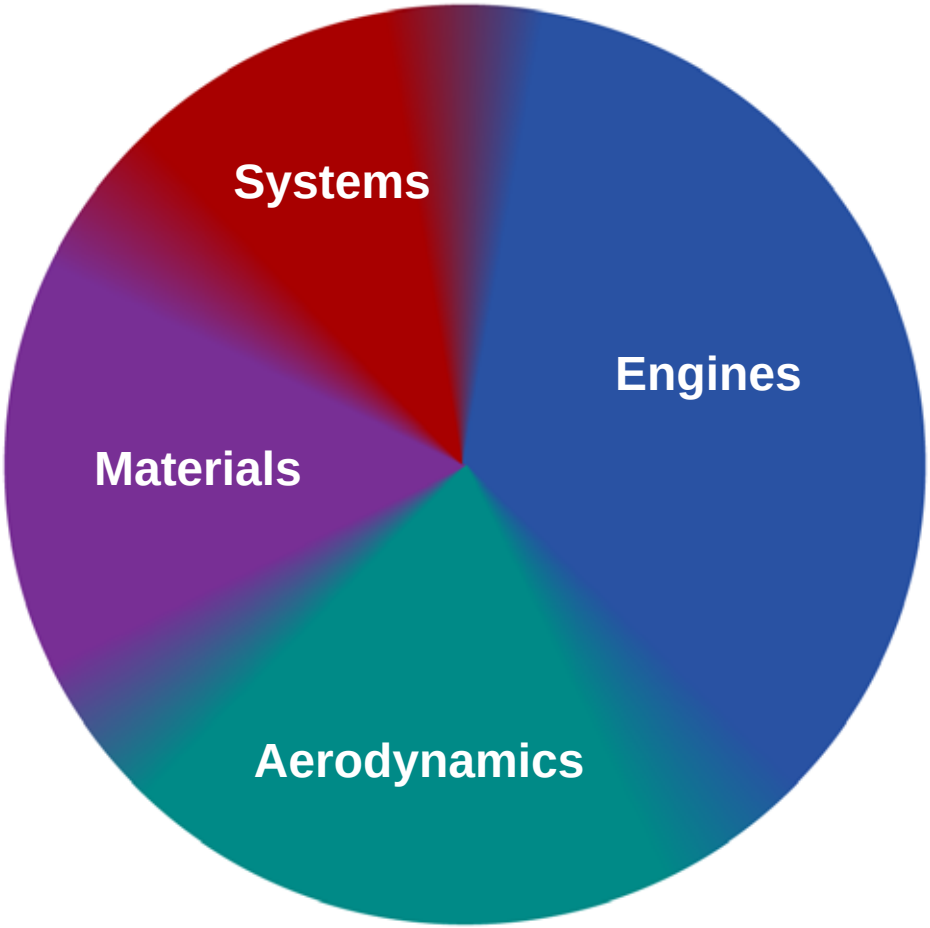

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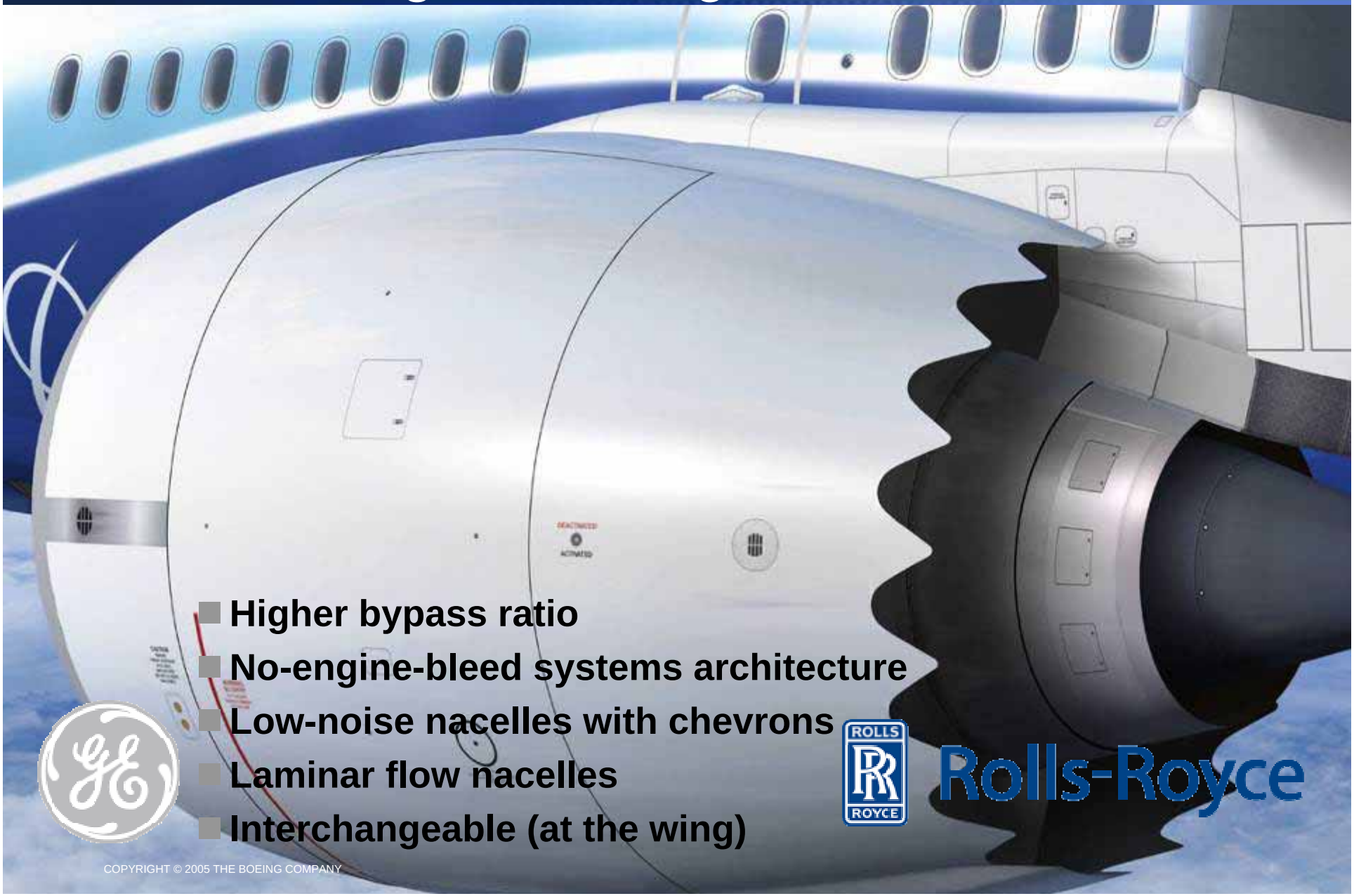
Both Engine Companies Demonstrating Solid Progress

787 DREAMLINER



- Higher bypass ratio
- No-engine-bleed systems architecture
- Low-noise nacelles with chevrons
- Laminar flow nacelles
- Interchangeable (at the wing)

Rolls-Royce

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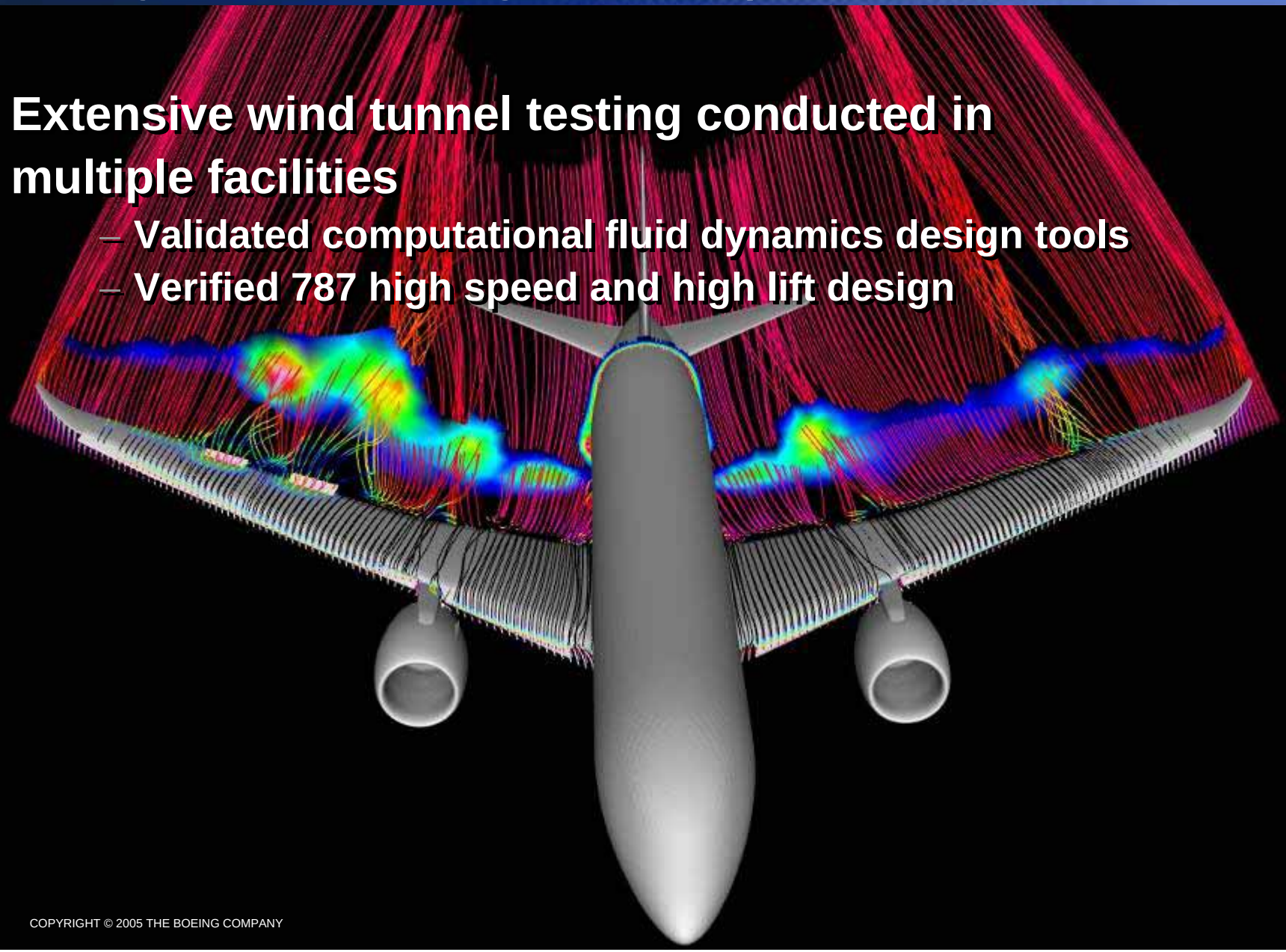
Aerodynamics Progress Report

787 DREAMLINER

- **Extensive wind tunnel testing conducted in multiple facilities**
  - **Validated computational fluid dynamics design tools**
  - **Verified 787 high speed and high lift design**



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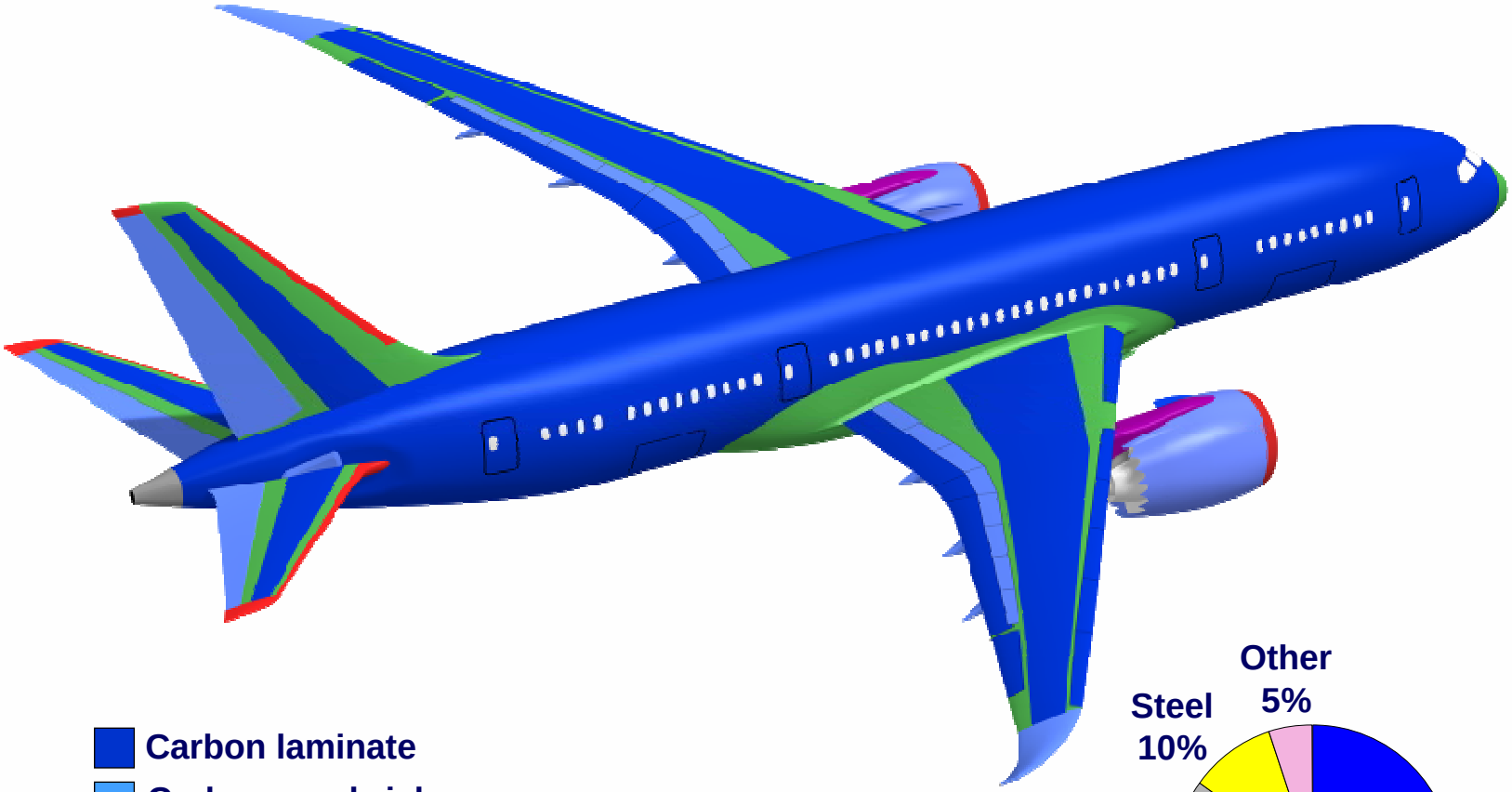
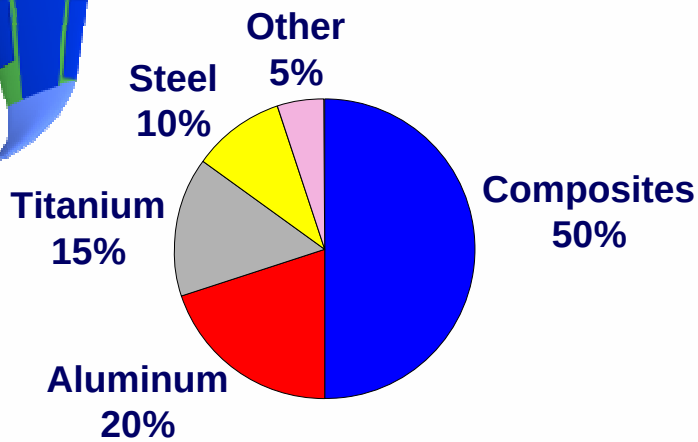
Composites Serve as Primary Structural Material

787 DREAMLINER



- Carbon laminate
- Carbon sandwich
- Other composites
- Aluminum
- Titanium
- Titanium/steel/aluminum



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Creating a Better Flying Experience

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New Flight Deck Balances Commonality and Innovation

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Digital Tools Provide In-Service Advantage

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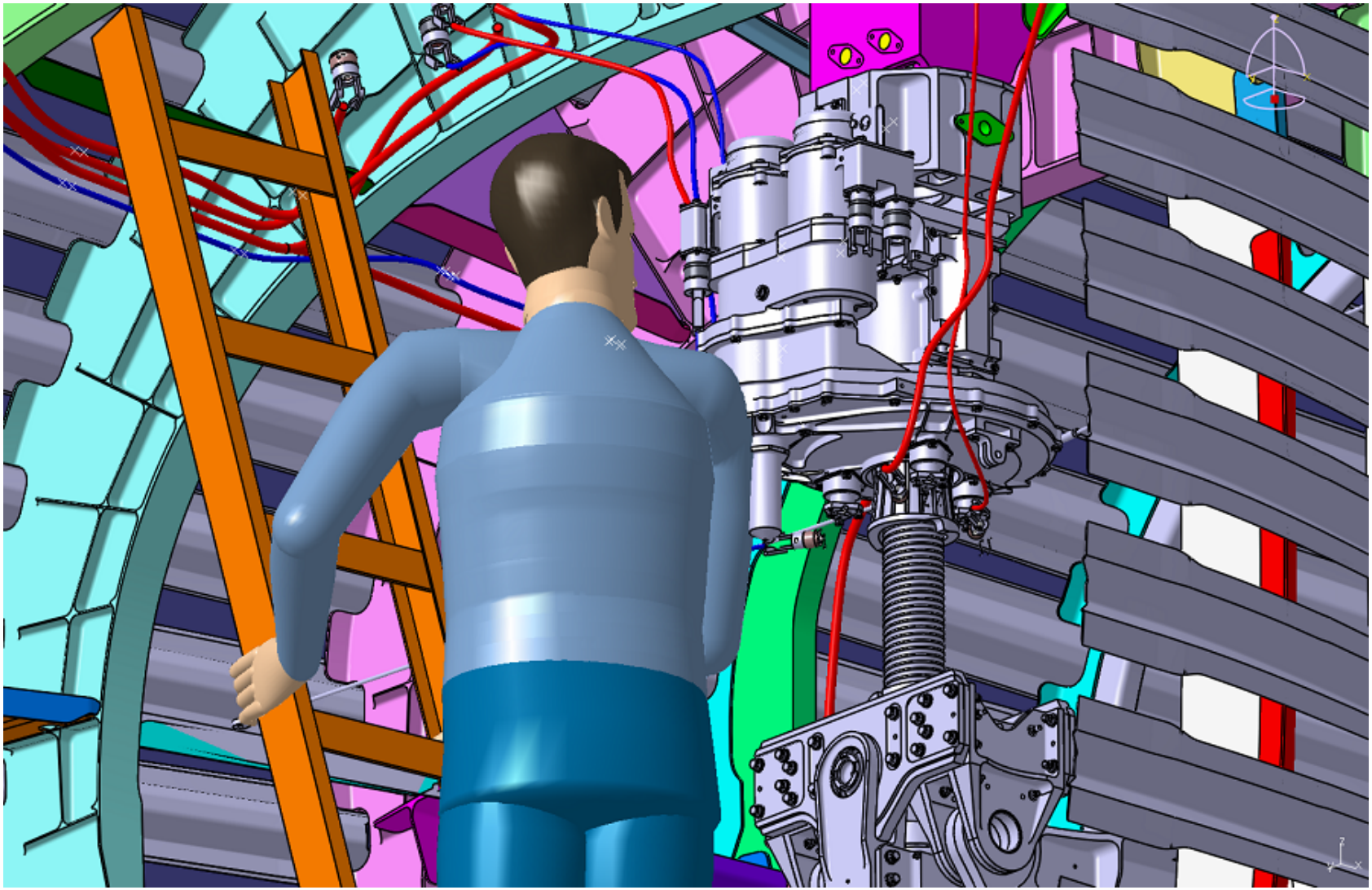

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Commitment to a Better Future

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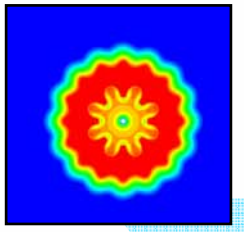

Analytical studies

Wind-tunnel tests

Static engine tests

2001 QTD 1

Quiet Technology Demonstrator

Boeing
Rolls-Royce
American Airlines

2005 QTD 2

Quiet Technology Demonstrator

Boeing
General Electric
Goodrich
NASA
All Nippon Airlines

747-8

The shape of the future

787

Dreamliner

Sustained Technology Programs Deliver Efficient Quiet Designs

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Making Quiet Jets Quieter

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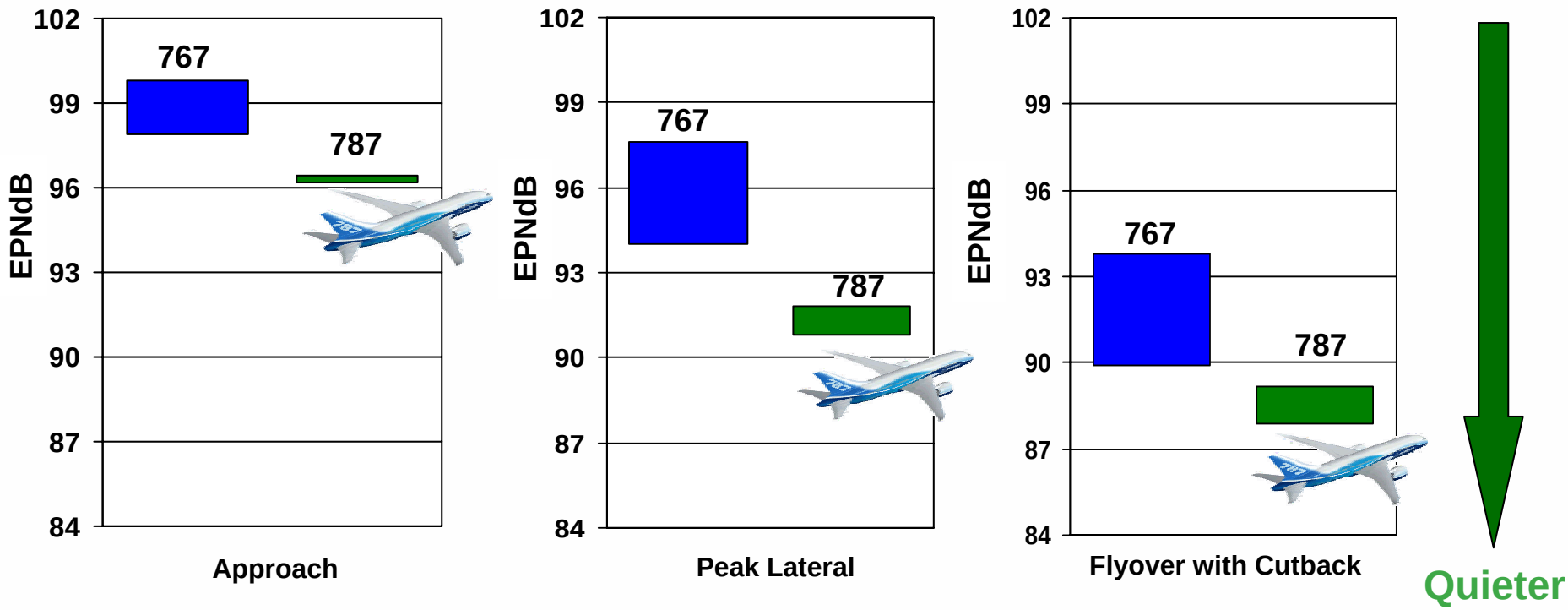
Quieter for the World



787-8 476k MTOW/365k MLW

Nominal Estimates

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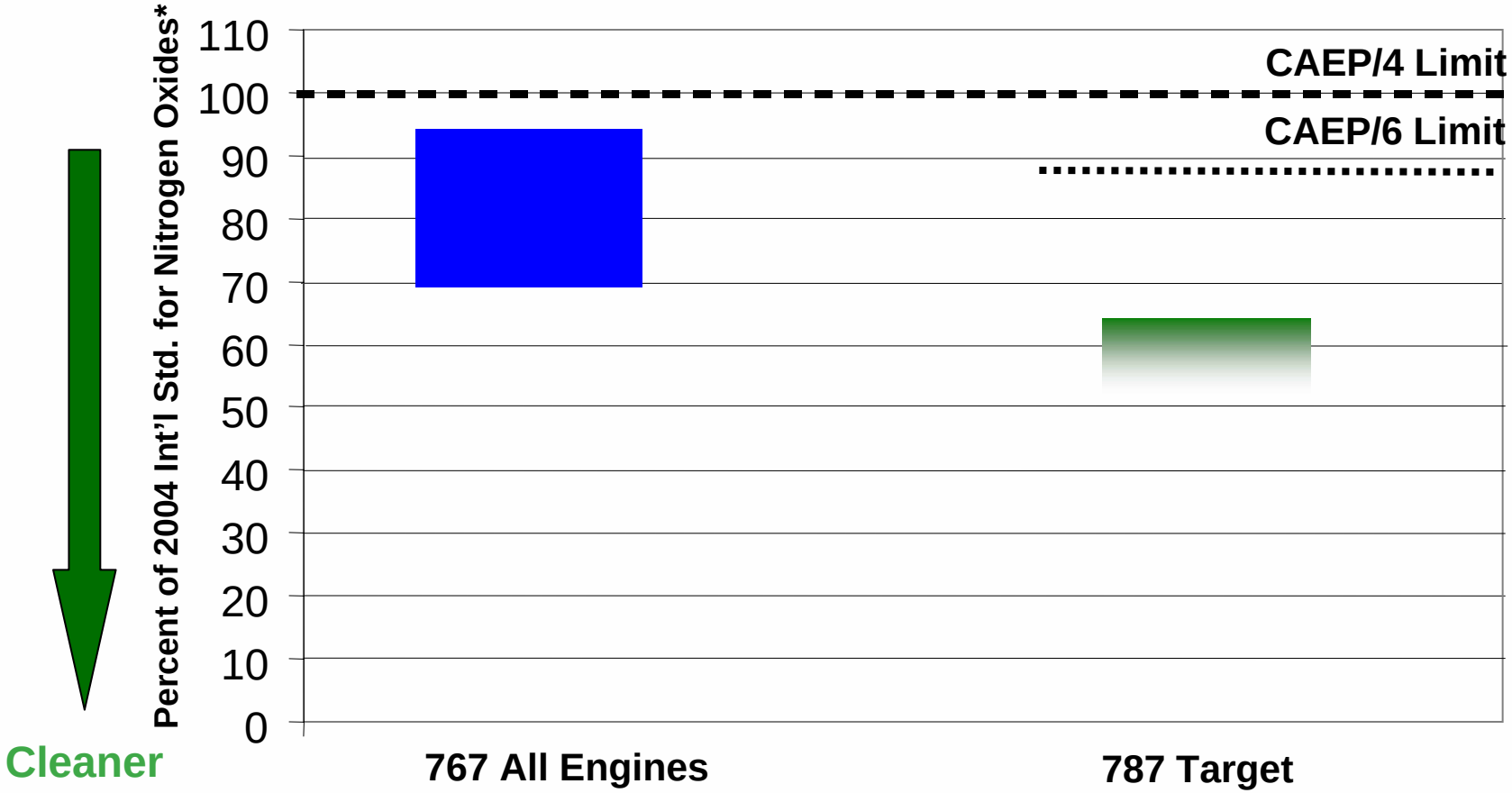
Quieter for Communities

60% smaller noise footprint

787 DREAMLINER

SFO-09202006001

Improved Fuel Use Means Fewer Emissions



* ICAO – International Civil Aviation Organization

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The 787 Dreamliner is cleaner, quieter and more efficient

787 DREAMLINER

The 787 Dreamliner delivers:

- 20%* Reduction in fuel and CO_2
- 28% Below 2008 industry limits for NOx
- 60%* Smaller noise footprint

*Relative to the 767

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International Team at Work

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BOEING
AleniaAeronautica
A Finmeccanica Company
Kawasaki
LATECOERE
MITSUBISHI HEAVY INDUSTRIES, LTD.
KOREAN AIR
ZODIAC
SUBARU
Vought Aircraft Industries, Inc.
SAAB
SPIRIT AEROSYSTEMS
Donaldson. filtration solutions
AIR CRUISERS
DIEHL Luftfahrt Elektronik
GOODRICH
Esterline Korry Electronics
EATON
GKN
PPG Aerospace Where Smart Solutions Take Flight™
Hamilton Sundstrand A United Technologies Company
Honeywell
Ipeco A Division of IPECO holdings Ltd
JAMCO
PFW
CTT SYSTEMS
Kidde Aerospace
Labinal SAFRAN Group
Messier-Bugatti SAFRAN Group
Messier-Dowty SAFRAN Group
ZODIAC
MONOGRAM SYSTEMS
MOOG
ZODIAC
Rockwell Collins
Panasonic
securaplane TECHNOLOGIES INC
smiths
THALES
Ultra ELECTRONICS
Parker
TORAY
Rolls-Royce
DELMIA
DASSAULT SYSTEMES
Intercim
BRIDGESTONE
GE

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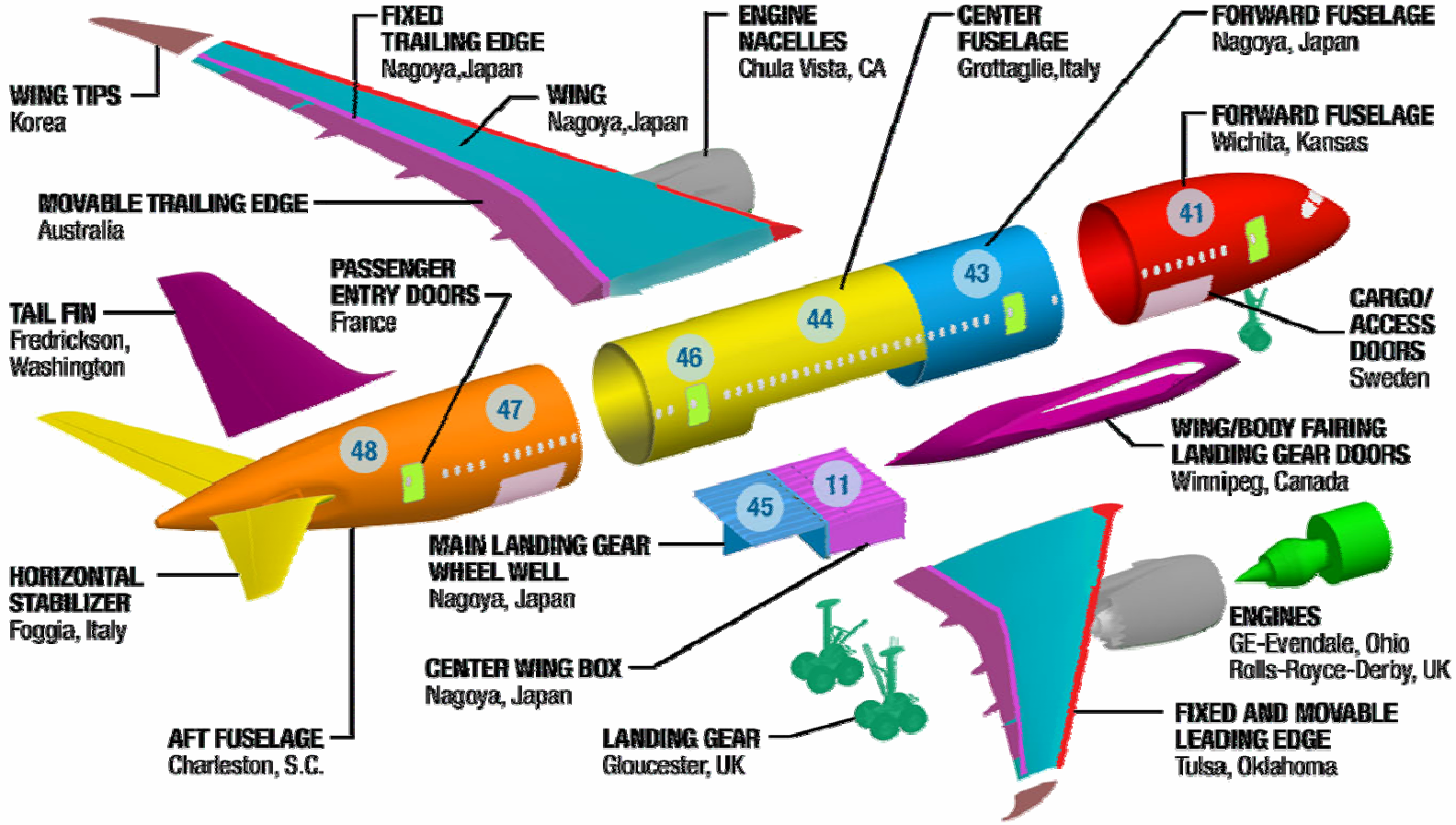
Partners Across The Globe Are Bringing The 787 Together

787 DREAMLINER

THE COMPANIES

U.S.	CANADA	AUSTRALIA	JAPAN	KOREA	EUROPE
Boeing	Boeing	Boeing	Kawasaki	KAL-ASD	Messier-Dowty
Spirit	Messier-Dowty		Mitsubishi		Rolls-Royce
Vought			Fuji		Latecoere
GE					Alenia
Goodrich					Saab



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Dreamlifter Route Structure

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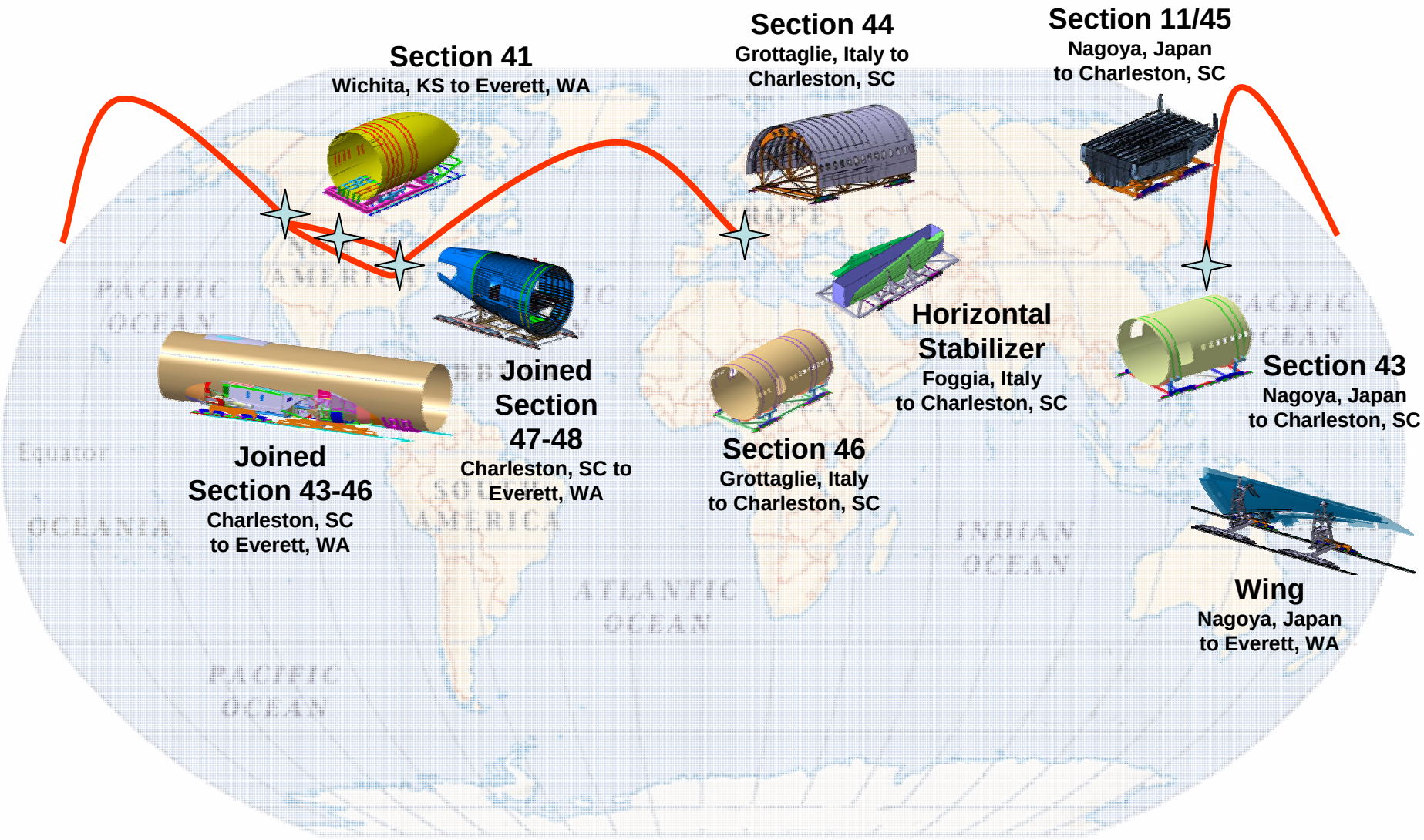

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Dreamlifter Progress

787 DREAMLINER

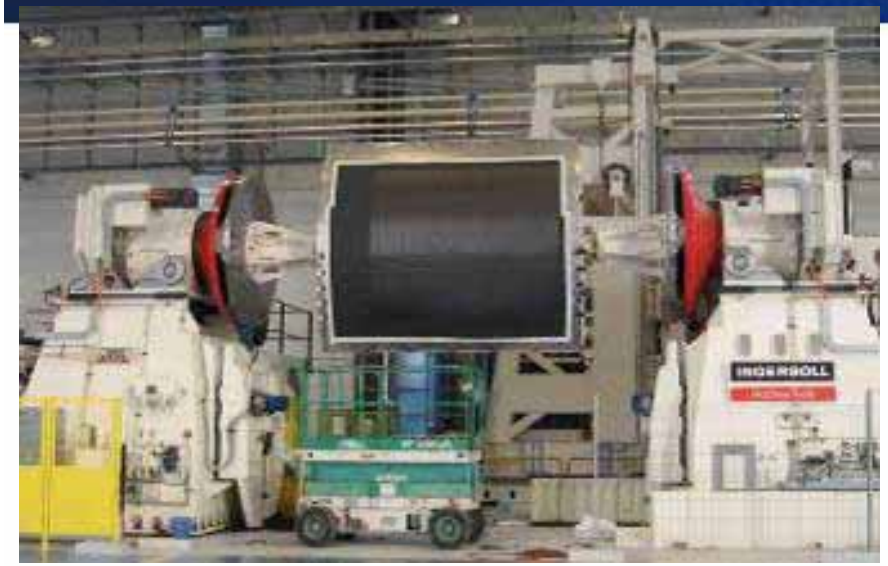
COPY

787 Structures Partner Progress

787 DREAMLINER

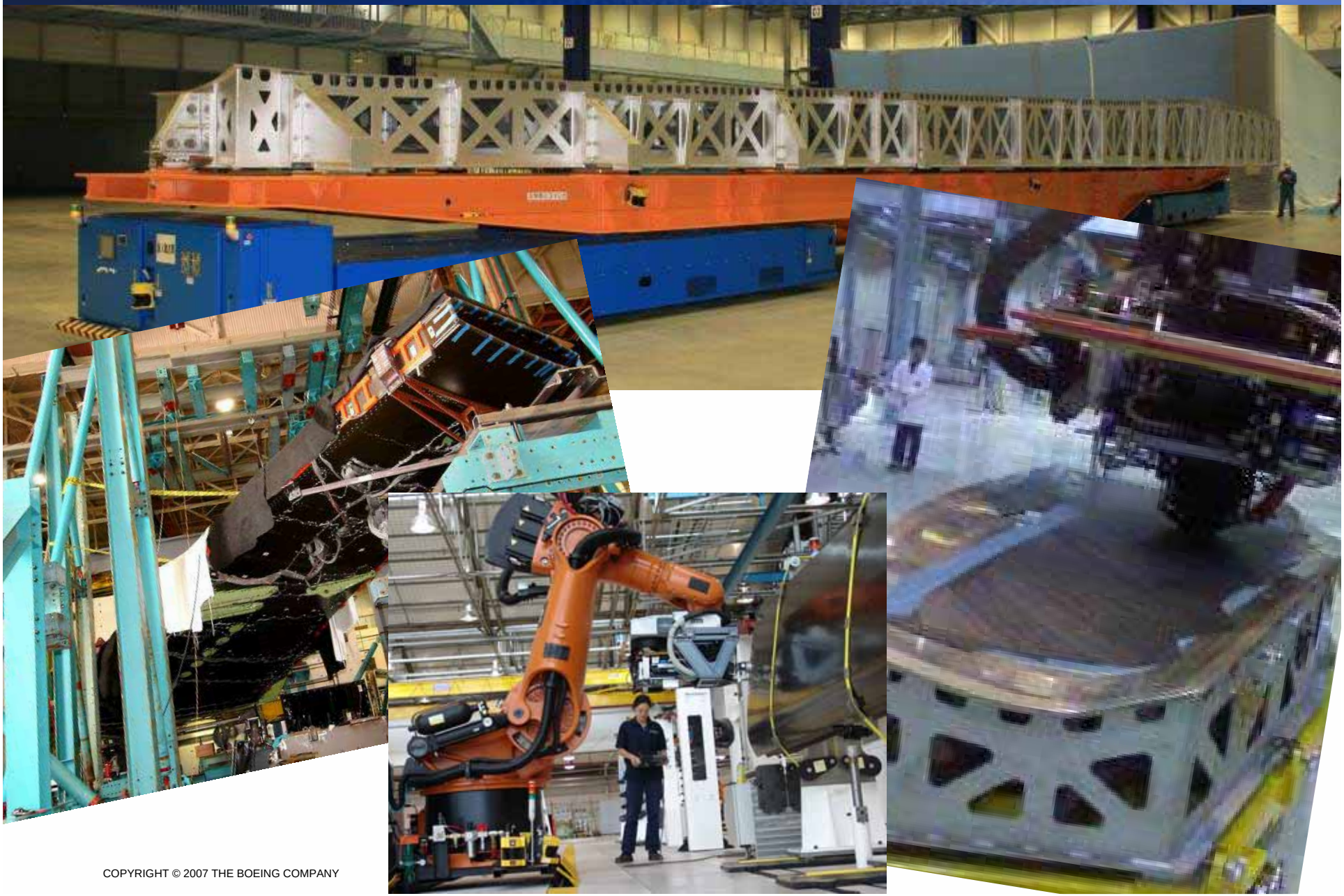
787 Structures Partner Progress cont.

787 DREAMLINER



787 Wing Partner Progress

787 DREAMLINER



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787 Propulsion Partner Progress

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787 Final Assembly Factory Flow Everett, WA

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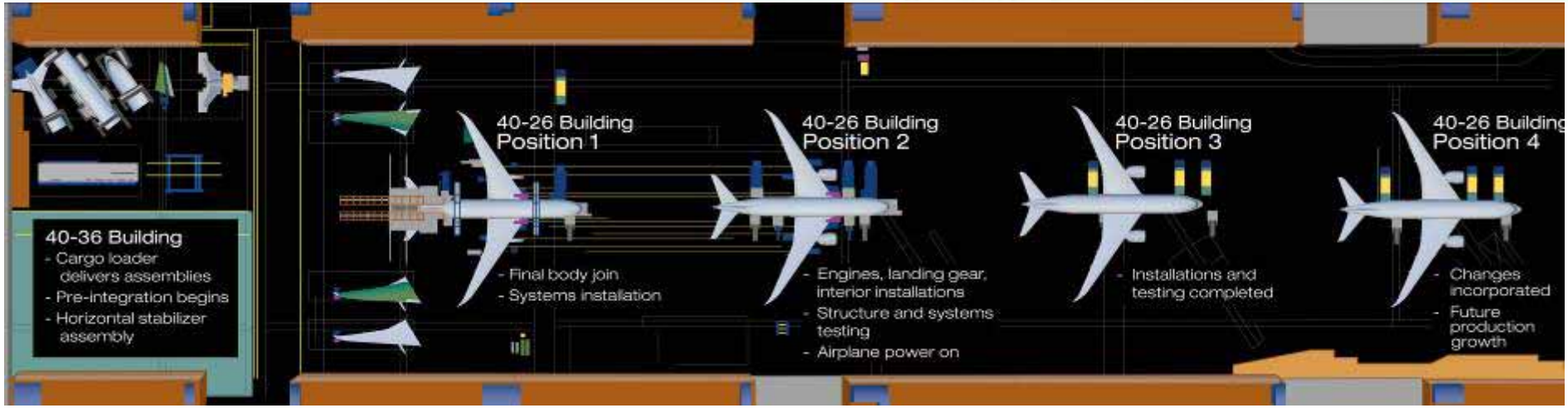

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Wings attached

787 DREAMLINER

Nose to Nose with the Dreamliner

787 DREAMLINER

Final Assembly – Tail/Stabilizer Installation

787 DREAMLINER

787 Program Schedule

787 DREAMLINER

Program Launch	Firm Configuration	Start of Major Assembly	Roll Out	787-8 First Flight	787-8 Enters Service			787-9 Enters Service
2004	2005	2006	2007	2008	2009	2010	2011	2012

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Worldwide Market Interest Strong

787 DREAMLINER

57 customers for 892 firm orders

ANA
Air New Zealand
First Choice
Continental Airlines
Vietnam Airlines
JAL
Air China
ILFC
China Eastern
China Southern
Hainan Airlines
Shanghai Airlines
Icelandair
Ethiopian
Korean Air
Air India
nwa Northwest Airlines
Royal Air Maroc
Polish Airlines LOT
Air Canada
arkia
LCAL
Qantas
Jet
Kenya Airways The Pride of Africa
Air Pacific
Singapore Airlines
Pegasus
Monarch
CIT
Boeing
AeroMexico
طيران الخليج Gulf Air
Jet Airways The Joy of Flying
AZAL
ALAFCO
Travel Service
Avianca
Virgin atlantic
Aviation Capital Group
Arik
TUI
Royal Jordanian
S7 Airlines
Uzbekistan airways
Air-Berlin
Aeroflot Russian Airlines
PrivatAir
British Airways
Vietnam Airlines
Dubai Aerospace Enterprise
AirEuropa
Air Seychelles *
AeroMexico *
Blue Panorama airlines *
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Thank you!

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