



FLEET ENHANCEMENTS

# Airframe, Propulsion, and Systems Modifications



LIFECYCLE  
SOLUTIONS



# AIRFRAME, PROPULSION, AND **SYSTEMS MODIFICATIONS**

## **TOTAL AIRCRAFT UPGRADE DESIGN, KITTING, AND EXPERTISE**

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**Boeing delivers LIFECYCLE SOLUTIONS,** products, services, and support that will help you to achieve success and maximize the value of your Boeing fleet throughout its life. And

Boeing has LIFECYCLE SOLUTIONS focused on fleet enhancements that can help your fleet retain maximum value by providing aircraft upgrade design, kitting, and expertise.



### **Expert integrated modifications for enhanced profitability.**

Boeing offers engineering design packages, kits, and technical consulting to improve the performance of your in-service commercial airplanes. These offerings cover the entire airplane and include a wide range of airframe, propulsion, performance, and system upgrades.

Our team will oversee all aspects of the design, integration, validation, certification, and project management. We can supply a value analysis to show how a proposed modification can affect your revenue, maintenance costs, and resale value. Because our engineers are modification specialists with unsurpassed expertise on Boeing jetliners, we can provide retrofit solutions that offer you higher value at lower risk.

Whether you need to meet changing market conditions by modifying one airplane or your entire fleet, we will support you in every way with integrated, one-stop lifecycle solutions.

### **Increased performance capability—**

Increase capacity and revenue through increased payload and range capability.

Boeing can provide you with a variety of solutions—from airplane flight manual revisions to kits for modifications.

Our team has helped many customers become more profitable by optimizing airplane performance. We will be glad to analyze your situation and identify specific opportunities that can boost your profits.

### **Propulsion modifications—**

Engine intermix thrust-rating changes and modifications to increase engine on-wing life.

You can also optimize performance with engine upgrades. Engine intermix installation retrofit kits increase operational flexibility and enhance airplane resale value. You can increase operational flexibility with thrust-rating change retrofit kits. We also support advanced diagnoses and prognoses, upgrades, and modifications to increase engine on-wing life.



### **ETOPS upgrades—**

ETOPS retrofits for over-water operational flexibility.

ETOPS operations may include various modifications—dependent on airplane model—such as addition of a hydraulic motor generator and fire extinguisher bottles.

As with all our modifications, we work with you every step of the way, including assistance with certification.



### **A full range of products and services:**

- Operations and performance
- Operating weights (MTOW, MLW, MZFW)
- Environmental control systems
- Electrical
- Fire protection
- Fuel system
- Hydraulics
- Ice and rain
- Landing gear, wheels, and brakes
- Lighting
- Emergency oxygen
- FAR 36/ICAO Annex 16 noise certification
- Structures
- Cargo handling systems
- Propulsion

For further information regarding these products and services, please visit the Modification Services Web site at [www.boeing.com/modservices](http://www.boeing.com/modservices).



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