Challenge
Airlines need to optimize the performance characteristics of their aircraft in order to achieve maximum return on investment. Optimum takeoff and landing calculations maximize payloads; reduced thrust power settings increase engine life; rapid access to engine-out procedure information, while automatically allowing for MEL items, increases safety and saves time.

Solution
The Jeppesen Onboard Performance Tool permits flight crews and ground personnel to perform real-time calculations based on current weather and runway conditions while adhering to company and regulatory policies and procedures.

Timely, accurate information
The Onboard Performance Tool provides self-planning capability through fast and precise calculations. It offers full accountability for engine / airframe configurations and weather / runway conditions. Instant and accurate calculations save time by correcting for pressure variation, runway conditions, engine bleeds, and MEL / CDL items. The Onboard Performance Tool is capable of computations using both metric and English units and indicates which units are used for any displayed data. This application uses a combination of pre-loaded and real-time information to make the calculations.

The Onboard Performance Tool calculates takeoff and landing performance parameters based on the aircraft manufacturer’s performance algorithms, operator-specified policies, and applicable regulations. It uses “First Principles” to calculate takeoff and landing performance. This means the fundamental equations of motion and parameters defining the airplane (thrust, lift, drag, etc.) are used to calculate performance directly, yielding more precise solutions. Advanced mathematical optimization techniques are used in order to maximize performance.
Aircraft performance inputs

• Manufacturer-provided SCAP modules or other aircraft performance computational programs
• Specific aircraft/engine, flap, and MEL/CDL configurations
• Airport elevation, runway, and obstacle data
• Airline policy data
• Defined departure and arrival procedures including emergency (engine-out) procedures
• NOTAM information pertinent to performance (modifications such as displaced thresholds or temporary obstacles)
• Load information for determination of aircraft weight and balance
• Current runway conditions
• Current atmospheric conditions

Performance outputs

• Stabilizer trim settings
• Optimized thrust settings
• Takeoff V-speeds
• Minimum flap retraction altitude
• Landing field and climb performance
• Factored or unfactored landing performance for normal and non-normal configurations

Benefits

• Reduced engine wear and lower maintenance costs by utilizing reduced thrust settings
• Maximized payloads
• Quick response to streamline dispatch operations