

HI TECH PRE-FLIGHT

Boomers look to replace manual calculators with PDA software

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SCOTT AIR FORCE BASE, ILL. — The KC-10 Extender has enhanced the nation's Global Reach and Global Power capability by bringing more than 170,000 lbs of cargo, 356,000 lbs refueling capability and 75 troops to any fight.

This transport capability and refueling transfer rate of 1,100 gallons per minute were vital to its flawless execution of combat and long-haul missions supporting Operation Enduring Freedom.

Despite the awesome lifting muscle the KC-10 provides, its boom operators rely on a 20-year-old, functionally obsolete hand-held calculator to determine the aircraft's in-flight weight and balance. Software engineers from the 805th Communications Support Squadron are working to remedy that. New software, developed by Mr. Gary Jung and Airman 1st Class Charles Edwards, is being tested at Boeing Laboratories, and will revolutionize the pre-flight load balancing activities and eliminate the need for manual load balancing calculations.

Using a Palm operating system on a Personal Digital Assistant, boom operators can now plan and record fuel offloaded for tanker aircraft. In addition, the new software provides faster and more accurate center of gravity computations. Other graphical enhancements are compartment representations for on-loading and off-loading of cargo to prevent aircraft tipping. The boom operator's PDA package also contains numerous conversion utilities, such as center of balance, pressure, temperature and cargo-restraint applications that automate the process of ensuring the proper number of forward, aft and lateral straps or chains have been applied to prevent cargo shifting during flight. While the software is not used for in-flight load balancing, it may be used to



Example screenshot

check balance if the proper inputs are provided.

Ultimately, this system upgrade makes mission planning more efficient and faster while reducing human interaction and possible errors. AMC boom operators believe the new software and PDA toolset could shave up to 30 minutes off the pre-flight preparation time for every KC-10 mission.

Once approved by Boeing, the KC-10 weight and balance application will clearly increase the operational velocity and overall effectiveness of the airframe and its crew.



