

LESS BURN LESS COST



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AIR TRANSPORT
IT REVIEW ARTICLE

SITA

Create success. Together

LESS BURN, LESS COST

IN 2013, AIRLINES SPENT AROUND \$211 BILLION ON THEIR FUEL. SO WITH AIRLINE NET PROFITS AT AROUND ONLY 3% OF REVENUES, EVEN A SMALL DECREASE IN FUEL USAGE CAN HAVE A BIG IMPACT ON THE BOTTOM LINE.

“That’s why it’s vital airlines and ground handlers pay the utmost attention to managing the aircraft’s weight and distribution of payload,” says SITA’s Allison O’Neill, VP Passenger Solutions.

“Next generation IT is paving the way, enabling aircraft to fly more efficiently and cost effectively than ever before. At the same time, there’s no compromise to safety.”

‘AFT SWEET SPOT’

Coming into equation is the importance of ‘aft’, meaning ‘towards the aircraft’s tail’. An aircraft loaded so that its center of gravity is near its aft limit uses less fuel than one where that center is further forward.

“With a more aft center of gravity, you can hit the sweet spot in terms of fuel efficiency, so the aircraft flies at a lower angle of attack and drag is reduced,” adds Gayton.

“An ideal aft center of gravity means that on the whole the aircraft will benefit from increased stability and better take-off and landing performance.”

IATA’s best practice guidelines say that properly managing an aircraft’s center of gravity will yield savings in the order of 1-2% during line operation. Flying with an ‘aft’ center of gravity can reduce fuel consumption by 1.5%.

BALANCING ACT

Consider the aircraft’s center of gravity. It’s the point where the aircraft would balance in all directions if it could be suspended from that point, and it must stay inside the aircraft’s designed limits to ensure safety and efficient fuel consumption.

“Where that center of gravity rests is vital to obtaining the ideal trim position, which optimizes aircraft balance in flight – reducing drag, improving lift and enhancing fuel burn efficiency,” says SITA’s John Gayton, Product Manager for Horizon Weight & Balance, SITA.

According to Boeing, a 1% reduction in drag will reduce annual fuel burn for one B737 by up to 45,000 kgs for every aircraft each year.

A BURNING ISSUE – LOAD BALANCING

Incorrect loading can have adverse affects:

- A higher take-off speed is needed, resulting in a longer take-off run.
- Rate and angle of climb are reduced.
- The service ceiling is lowered.
- Cruising speed is reduced, cruising range shortened.
- A longer landing roll is required.
- Excessive loads are imposed on the structure.

Optimizing aircraft balance achieves:

- Reduced fuel burn of anywhere up to 1%.
- Improved safety through better take-off and landing performance.
- Reduced environmental impact.
- Decreased wear and tear on aircraft structure, resulting in extended asset longevity.
- Safer control and manoeuvrability.



LOAD PLANNING – THE NEXT GENERATION

SITA is introducing new features to Horizon Weight & Balance to increase productivity, optimize resource allocation, and reduce operating costs for ground planning.

COST MANAGER APPLICATION

The new system integrates with Liberator’s Cost Manager Application - Center of Gravity tool. Taking into account center of gravity and aft calculations, it’s based on accepted industry standards and principles.

FOR MORE

For the full article, go to www.sita.aero/air-transport-it-review
Or read our tablet issue.

BEST PRACTICE

Finding that sweet spot, demands that multi-discipline teams work in synergy to manage load balancing and fuel burn reduction.

IT must comprise ever more sophisticated weight and balance tools to reach the aircraft’s optimal balance.

SITA’s O’Neill: “New generation tools are essential for creating awareness across flight operations teams about the importance of fuel efficiency and reduced carbon emissions, and how they can greatly improve fuel savings.”

In the task of safely defining and optimizing the operational parameters for each flight, those tools must give load planners easy access to a range of critical flight, payload and other related data.

INNOVATION

Such is the case with Horizon Weight & Balance, currently in deployment with several airlines and ground handlers. As one of the first innovations to emerge from SITA’s Next Generation Passenger Management program, it seamlessly embraces:

- Aircraft and flight technical data.
- Variable data on payload.
- The ability to allow for an aircraft’s weight and center of gravity to change with fuel consumption.
- Close integration with check-in systems.

CLEAR VISIBILITY

Unless they have the right tools, as load planners load up an aircraft it’s difficult for them to visualize the impact of their decisions on cost in real-time.

“Getting the right data is one challenge. But it’s equally important that tools give clear visibility of the costs and consequences of poor aircraft balance,” according to Kevin Pryor, CEO of Liberator, whose Cost Manager Application (CMAP) technology is integrated with Horizon.

Again, the principles are embodied in SITA’s Horizon Weight & Balance technology, with the integration of a powerful tool, offering next generation load planning.

COST CULTURE

Highly intuitive and simple graphical displays show the ideal trim zone or cost penalty associated with an aircraft’s current load planning status and the loading changes being made to calculate the ideal trim position for the aircraft.

“Displaying big green or red buttons with dollar signs on them to indicate potential fuel waste will certainly motivate planners to rethink loading decisions,” says Pryor.

“This will empower airlines and ground handlers, enabling their staff to optimize fuel usage by giving them the ability to more easily manage an aircraft payload distribution and center of gravity.

“What’s more, it introduces best practice while motivating staff to become cost managers in their own right, helping to ensure less fuel burn and much less cost.” ■

SITA AT A GLANCE

The air transport industry is the most dynamic and exciting community on earth – and SITA is its heart.

- Our vision is to be the chosen technology partner of the industry, a position we will attain through flawless customer service and a unique portfolio of IT and communications solutions that covers the industry's every need 24/7.
- We are the innovators of the industry. Our experts and developers keep it fuelled with a constant stream of ground-breaking products and solutions. We are the ones who see the potential in the latest technology and put it to work.
- Our customers include airlines, airports, GDSs and governments. We work with around 450 air transport industry members and 2,800 customers in over 200 countries and territories.
- We are open, energetic and committed. We work in collaboration with our partners and customers to ensure we are always delivering the most effective, most efficient solutions.
- We own and operate the world's most extensive communications network. It's the vital asset that keeps the global air transport industry connected.
- We are 100% owned by the air transport industry – a unique status that enables us to understand and respond to its needs better than anyone.
- Our annual IT surveys for airlines, airports and passenger self-service are industry-renowned and the only ones of their kind.
- We sponsor .aero, the top-level internet domain reserved exclusively for aviation.
- In 2013, we had consolidated revenues of US\$1.63 billion.

For further information, please visit www.sita.aero



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