

Fuel Conservation

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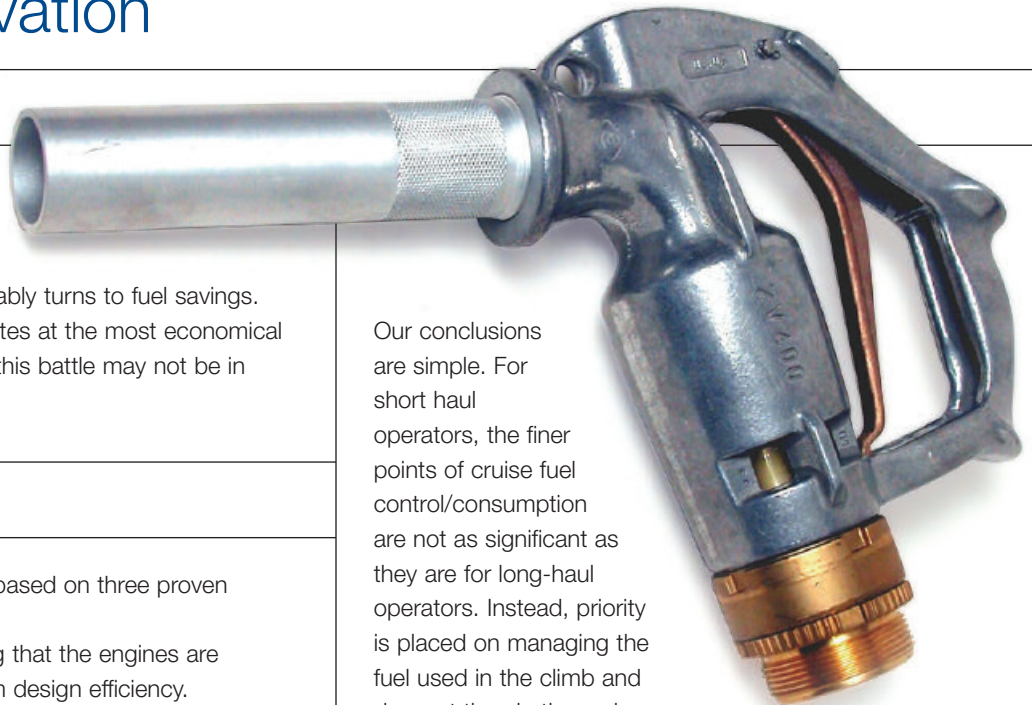
In the current economic climate with record fuel prices, many airlines are operating on very tight budgets and so focus inevitably turns to fuel savings. There is a need to operate all routes at the most economical fuel burn and airlines which lose this battle may not be in business much longer.

How to Save Fuel

Traditionally, fuel conservation is based on three proven practices:

- Engine monitoring: ensuring that the engines are performing to their optimum design efficiency.
- Airframe monitoring: ensuring operators are not flying inefficient airframes.
- Flight planning: ensuring that the route and fuel loading are optimized, using the known aircraft performance characteristics and fuel cost index. It costs fuel to carry fuel!

All of these techniques follow sound engineering and operational principles, but it is necessary to expand on this. At Flight Data Services, we have been examining fuel consumption on various flights from different operators, aircraft types and routes. This allows us to help our customers achieve a competitive advantage.



Our conclusions are simple. For short haul operators, the finer points of cruise fuel control/consumption are not as significant as they are for long-haul operators. Instead, priority is placed on managing the fuel used in the climb and descent than in the cruise. Selection of optimum cruise level is, however, important. Furthermore, the quantity of fuel consumed in the climb and descent phases is heavily dependent upon the way the aircraft is flown. Finally, the practices of engine monitoring, aircraft monitoring and flight planning may have little impact upon the way the crew operates the aircraft during climb and descent. However, adherence to Standard Operating Procedures (SOPs) will effect fuel consumption.

Where aircraft are fitted with Flight Management Computers (FMCs), the selection of the correct Cost Index is also important for minimizing fuel burn.

All of these factors relate to company operational procedures. However, consideration has to be given to the effect that ATC has on the ability to fly the aircraft in the most economic method. Step climbs/descents and holding, both, on the ground and in the air, all add unnecessarily to fuel consumption.



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Using Flight Data

How can flight data help to improve flight efficiency?

In a similar way to its use in improving flight safety. We provide overviews of the airline with individual flight analyses, pinpointing inefficient flights.

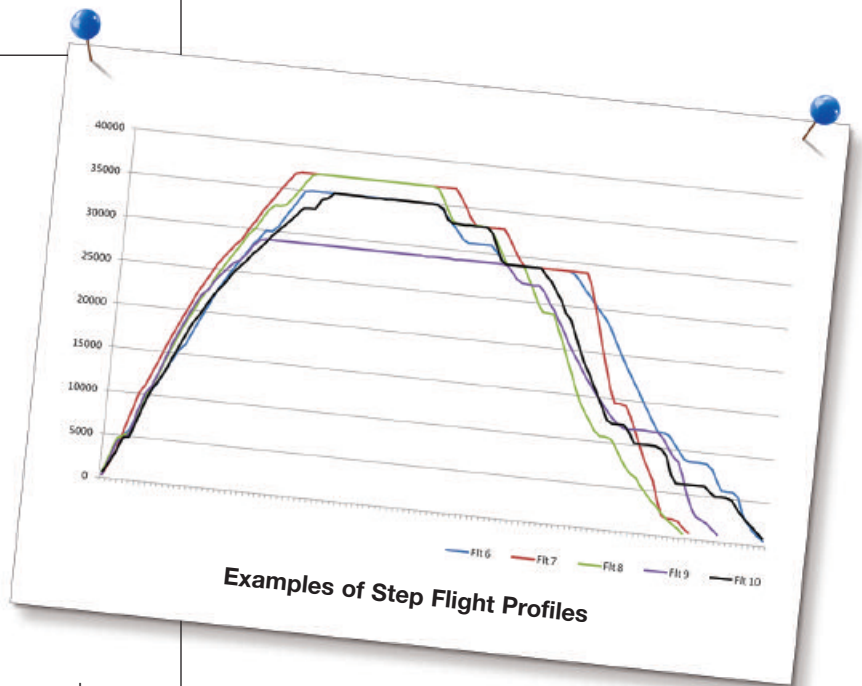
Additionally, we analyze flights and highlight characteristics of the climb and descent profiles depicting higher fuel consumption than necessary. We compute the optimum speed and climb profiles from actual flight data (i.e. not limited by manufacturer's data).

As with flight safety events, crew who are not operating to SOPs regarding fuel consumption can be identified. Where necessary, operators can take appropriate action. To maintain the parallel with flight safety, operators must handle these events with careful consideration. Involvement of the crew is vital in order to achieve the desired positive outcome.

Does monitoring fuel consumption make a difference?

Some operators are already flying close to optimal efficiency, but still have occasional flights where excessive use of flap or deviating from optimal speeds occurs. Other operators exhibit a wide range of profiles, showing up to 12% more fuel consumed on a given route. Such an increase may simply arise from the crew's handling of the aircraft or ATC restrictions on ideal profiles.

Airframe and engine monitoring programs can fine-tune aircraft performance to fractions of 1%, but pilot actions and ATC restrictions can render any savings obsolete through inefficient flight profiles. A proactive FOQA/FDM program can help to prevent this happening.



Conclusion

FDS helps customers to identify fuel inefficiencies and safety issues within their operations, and achieve measurable reductions in event rates.

How will you enhance fuel conservation and flight safety in your operation?

Find out more

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