

INNOVATIVE SOLUTIONS IN ACTION

F-22 Demo Delivers New Guidance



FLY-FAST, SAVE GAS

An operational energy (aviation fuel) optimization initiative led by the Deputy Assistant Secretary of the Air Force for Operational Energy (SAF/IEN) helped to provide new guidance for fighter speeds. Today, F-22 and F-35 fighter sorties are planned to fly closer to fighters' maximum range airspeed, while still within tanker boom limits, during trans-oceanic fighter relocation (Coronet) missions. These faster speeds reduce overall fuel consumption while conserving essential flying hours.

In August 2017, SAF/IEN conducted a proof-of-concept demonstration to show that increased speeds during this type of aircraft redeployment decreases fuel consumption. One cell of F-22s and an accompanying tanker for refueling, flew at a higher airspeed, while the other control cell flew the standard profile. *The faster speed parameters are within the Aerial Refueling Flight Envelope for the F-35 and F-22, as well as the KC-135 and KC-10.* Throughout the five hour flight, researchers aboard the tankers collected the sortie data. At the end of the sortie, the data revealed that the faster cell **reduced total flight time by 10%** and **burned 6% less fuel** than originally required.



New Fighter Speeds

Updated USAF guidance to increase fighter speeds during Coronet missions was distributed to flight operations commanders within Air Combat Command on July 2, 2018

WHY IT MATTERS – The Air Force is interested in energy-informed solutions, and one way this is achieved is through innovative thinking. In this example, a cost-free alternative to flying Coronets was identified that can decrease flight time by 10% and provide a 6% fuel savings. Adjusting flight speed, in this case, means more hours for flight training and less wear on the aircraft.

Air Combat Command (ACC) applied the new guidance to approximately 130 annual F-22 movements. Combined with the potential of other Combat Air Forces (CAF) platforms, 800+ hours of flight time can be reallocated back to the platforms annually. Every innovative solution has the potential to enhance the overall readiness of the Air Force.

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OUR MISSION

To **enhance combat capability** and **mitigate operational risk** to the warfighter through **energy-informed solutions**

OUR VISION

To create an **energy optimized** Air Force that maximizes **combat capability** for the warfighter

Optimizing Operational Energy Leads To:

Increased Combat Capability



Increased Aircraft Lifespan



Lower Aircraft Maintenance Costs



More Training Opportunities



\$5-7 billion

Spent on Air Force
aviation fuel annually

81%

Of the Air Force energy
budget is spent on
aviation fuel

2 billion

Gallons of aviation fuel used
by the Air Force annually

8,000

Additional sorties fueled
from a 1% efficiency increase