A-10 Flies on Synthetic Fuel Blend

By Samuel King Jr.
96th Air Base Wing

EGLIN AIR FORCE BASE, Fla., March 26, 2010 – In a step toward cleaner fuel and energy independence, an A-10C Thunderbolt II here took to the air yesterday fueled with a blend of a synthetic fuel known as Hydrotreated Renewable Jet, or HRJ, and conventional JP-8 fuel.

HRJ is a hydrocarbon synthetic jet fuel, created from animal fats and plant oils. Members of the Air Armament Center's 40th Flight Test Squadron conducted this first feasibility flight.

Air Force Staff Sgt. Rusty Jones prepares to fuel an A-10C Thunderbolt II with a 50/50 blend of synthetic fuel and JP-8 at Eglin Air Force Base, Fla., March 25, 2010. The A-10 then flew the first flight of an aircraft powered solely by a biomass-derived jet fuel blend. U.S. Air Force photo by Samuel King Jr.
(Click photo for screen-resolution image);high-resolution image available.

"The Air Force is committed to reducing our reliance on foreign oil," said Terry Yonkers, assistant secretary of the Air Force for installations, environment and logistics. "Our goal is to reduce demand, increase supply and change the culture and mindset of our fuel consumption."

Although mission data has yet to be analyzed, the demonstration was considered a success just by the jet leaving the ground, officials said, because it proved an Air Force aircraft can be flown using a synthetic fuel blend.

A thumbs up came from the test pilot, Air Force Maj. Chris Seager, after the flight. Immediately upon stepping out of the aircraft, he told fuel certification officials that the jet "felt great, no problems whatsoever."

"This sortie was pretty uneventful and predictable. … That's a good thing," said Seager, who focused on monitoring his gauges and engine performance during the flight. "It was a real privilege to be part of this ground-breaking demonstration."

After hearing from the pilot, the certification officials, who traveled here from Wright-Patterson Air Force Base, Ohio, breathed a little easier, but had no doubts about the demonstration and its potential.

"We weren't concerned at all about the flight," said Jeffrey Braun, director of the alternative fuels certification office. "We knew it would take off, and we're thrilled this project is moving forward."

The fuel used for the demonstration was from the camelina plant, a weed-like plant that needs little to flourish and isn't used as a food source. HRJ's refining process and emissions are cleaner than those of conventional fuels, officials said.

The Air Force is the Defense Department's largest user of jet fuel, consuming 2.4 billion gallons per year. The Air Force plans to switch half of its continental U.S. jet fuel

requirement to alternative fuels by 2016. A short-term goal is to have all Air Force aircraft certified to fly using alternative fuels by 2012, Yonkers said.

The 40th Flight Test Squadron's two-month build up to the pioneering flight was focused on safety and risk mitigation. The week of the flight, squadron members performed ground tests and the A-10 flew with the fuels split into its two separate fuel tanks.

The A-10 has the ability to segregate its fuel system so one set of fuel tanks can be paired to one engine while the other set can be paired to the other engine without mixing fuel between systems. This makes the A-10 a perfect platform to begin testing fuel blends, said Air Force Capt. Andrew Radzicki, a test engineer with the 40th Flight Test Squadron.

The Air Force plans for a second feasibility demonstration this summer using an F-15 Eagle fighter jet to test performance parameters. A C-17 Globemaster III transport jet will be tested because of the amount of fuel it consumes, and a F-22 Raptor test is planned because of the fighter's complexity. The latter two tests are scheduled to occur later this year.