Department of the Navy SBIR/STTR Transition Program

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NAVAIR JSF17-821

Topic # N07-040
Carbureted Fuel Injection System for Augmentor Stability
Creare LLC

WHO

SYSCOM: NAVAIR

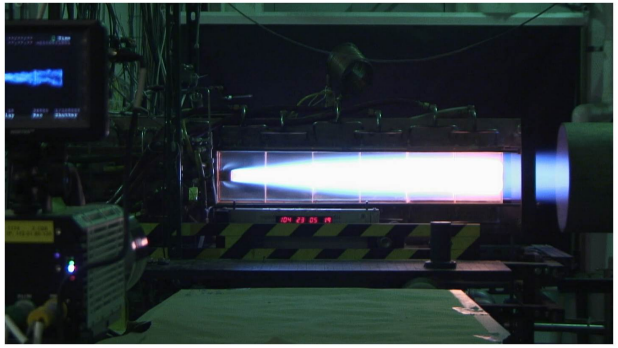
Sponsoring Program: Joint Strike Fighter

Transition Target: F-35 Lightning II

TPOC:
(301)995-3995

Other transition opportunities: F-22 Raptor
6th Generation Jet Fighter
Future Bomber Aircraft
Cruise Missiles

Notes: The image to the right is CFIS Testing in an Augmentor Rig



WHAT

Operational Need and Improvement: Augmentors Operate Over a Broad Range of Conditions
Fuel Delivery is Sensitive to Operating Condition
Suboptimal Fueling leads to Weak or Unstable Combustion

Specifications Required: Develop Flameholder Concepts that Enhance Augmentor Stability
Reduce Blowout for High-Altitude, Low Mach Number Conditions
Minimize Impact on Augmentor Design

Technology Developed: CFIS is a Fueling System that Acts as an Additional Augmentor Fueling Stage
CFIS Injctors Pirmarily Fuel the Wake of the Flameholder
CFIS Injectors are used to More-Optimally Fuel the Augmentor Over the Flight Envelope

Warfighter Value: More Robust Combustion and Stability
Expanded Flight Envelope: Greater Altitude and Speed
Enhanced Thrust
Enhanced Reliability and Durability

WHEN

Contract Number: N68335-13-C-0392 **Ending on:** April 30, 2018

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Feasibility Demonstration	N/A	Academic Rig Initial Demonstration	TRL 4	July 2008
Detailed Sizing and Rig Demosntration	N/A	Adademic Rig Detailed Testing	TRL 5	September 2010
High-Fidelity Rig Test	N/A	Demonstrable Combustion Stability Enhacement	TRL 6	April 2017
Engine Test	Med	Demonstrable Combustion Stability Enhacement	TRL 7	June 2018
Flight Test	Med	Demonstrable Combustion Stability Enhacement	TRL 8	January 2020

HOW

Projected Business Model: The CFIS IP has been Patented
CFIS IP has been Licensed to Engine OEM
CFIS will be Manufactured by an Engine OEM Preferred Supplier
CFIS will be Supplied as Part of a New Engine or as a Retrofit Kit

Company Objectives: Creare is an Engineering Research and Development Firm
Creare's Objective is to Provide Engineering Value to our Clients
Our Objective for CFIS is to Transition the Technology to DoD Customers
Our Forum Objective is to Enhance the Visibility of the CFIS Technology

Potential Commercial Applications: Augmentors are a Military Technology
Augmentors are Generally Not Used Commercially
Commercial Applications Include Commercial Supersonic Aircraft
Private Spaceflight

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