Status Update:

T56 Series 3.5
Engine Enhancement Program





August 2015

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T56/501D Series 3.5 Configuration

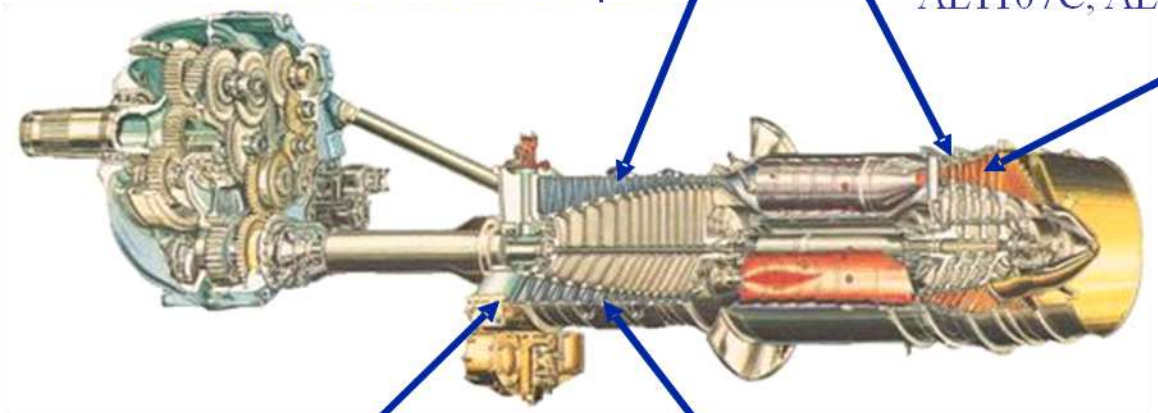
Compressor Wheel Knife Seals

Similar to fielded SIV parts

Un-Cooled 1st Stage Turbine Blade

AE1107C, AE2100, AE3007 Stg. 2 HPT Blade

Turbine Aero Redesign - Improved Blades and Vanes



Compressor Inlet Housing

SIV style inlet-redesigned for better flow

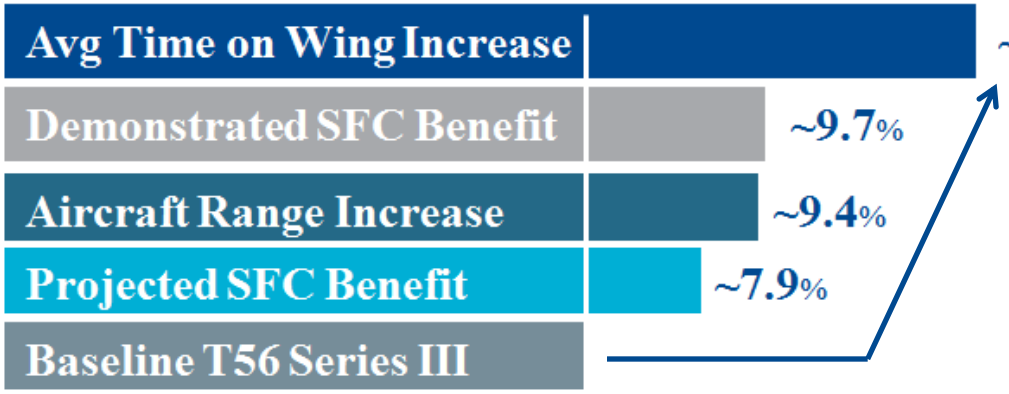
REM Comp Blades

COTS 501-K industrial blades

- No aircraft installation / installation changes
- No controls changes
- All technologies in service on other R-R civil & military products

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Series 3.5 Benefits





USAF C-130H T56-A-15 Series 3.5 single-engine flight evaluation test completed (Oct 2012)

Fuel Savings **Proven**	Reduced emissions; better for the **Environment**	Increased operational **Flexibility**
Short term **ROI**	life cycle cost **Reduced**	

Significant fuel & maintenance savings over remaining aircraft life cycle

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Series 3.5 Next Steps

- ✓ USAF has secured ~$38M in FY 14-15 funding for T56-A-15 (GFE) Series 3.5 Program
- ✓ USAF C-130H T56-A-15 Series 3.5 Certification Basis completed
- ✓ USAF C-130H T56-A-15 Series 3.5 ECP approved
- USAF contract discussions under way for Series 3.5 procurement contract
- Working with LM Aero to develop C-130 T56-A-15 LFE Qualification Plan

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We have a Series 3.5 Launch Customer !

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NOAA Hurricane Hunters

- 2 X P-3 aircraft- 10 X Series 3.5 packages
- Single-Engine Flight Test completed by joint LM/Rolls-Royce/NOAA team- May 2014
- P-3 Series 3.5 Qualification now completed- first four-engine Series 3.5 configuration installed and operational as of 3 Jun 2015
- USAF and NAVAIR provided P-3 Series 3.5 Airworthiness/Qual. Consultancy and data validation services to NOAA





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NOAA Series 3.5 Single-Engine Flight Test Results

- Ground and flight tests demonstrated significantly reduced turbine inlet temperatures (TIT)
- Operational flights demonstrated significant improvements in fuel efficiency





<u>3 June 2015- MacDill AFB:</u>
First flight with 4-engine Series 3.5 configuration



Approximately <u>12.8% lower SFC</u> over the 3-hour flight (versus Series III configuration)

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