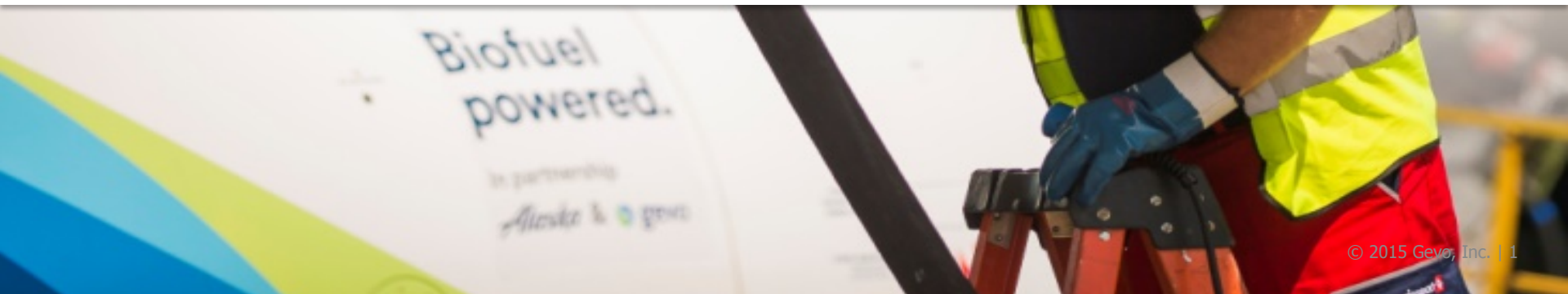




ATJ-SPK - A Certification Story

November 17th, 2016



ASTM Qualification (D4054)



**D7566 New Annex
Drop-In Fuel**



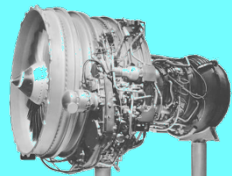
**New Spec
Non-Drop-In
Fuel**

**Unchanged
Operating
Limitation**

**Approved for
Commercial Operations**

New Oper Limitation

Airworthiness Certification



Re-Certify All Engines



Re-Certify All Aircraft



**Approved for Airline
Operations**

Production



Semi-Synthetic Fuel

**Tighter Control of
Fuel Properties**

Re-Identified



Conventional Jet Fuel

**Separate Tracking
NOT Required**

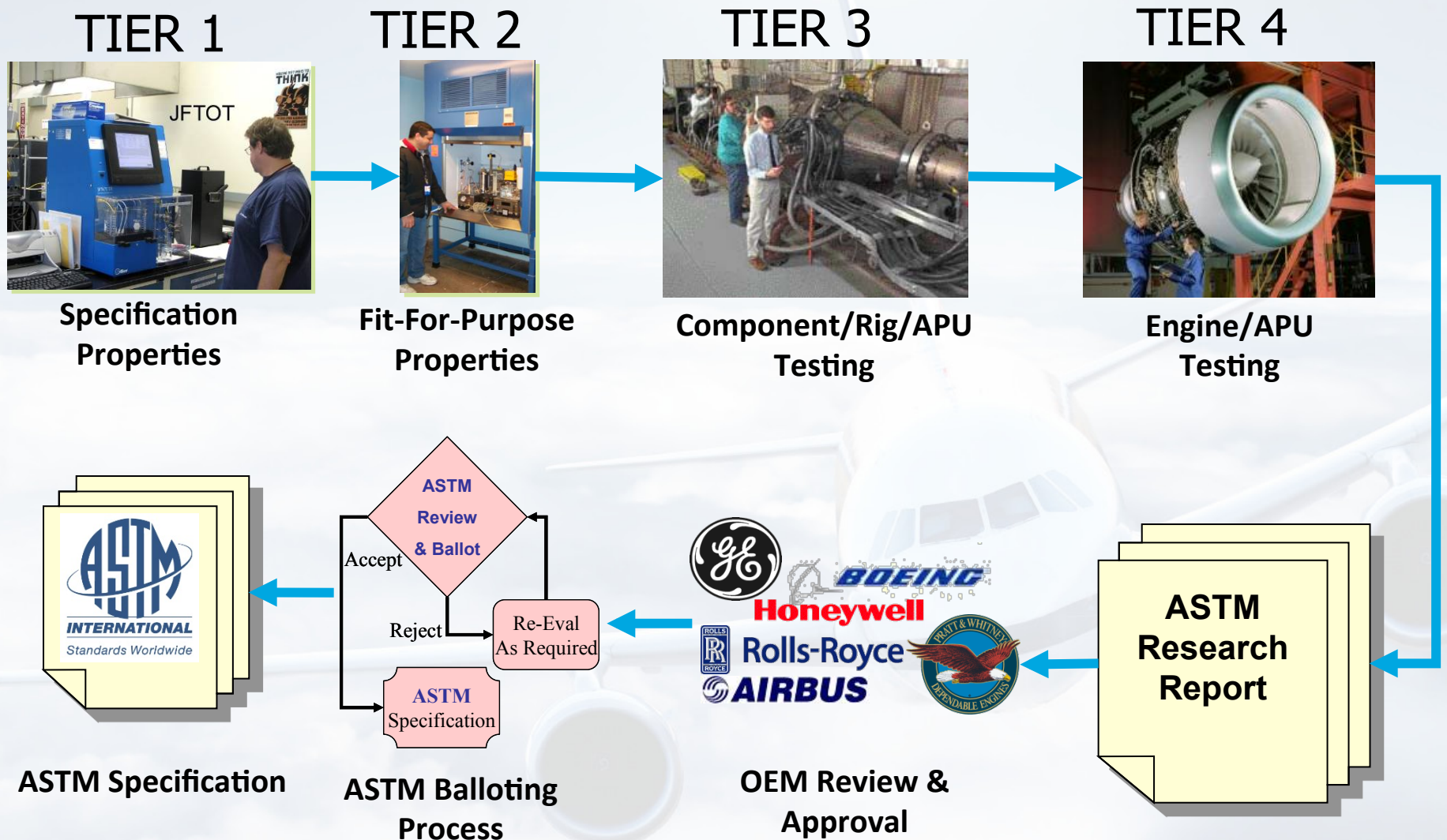


Operations



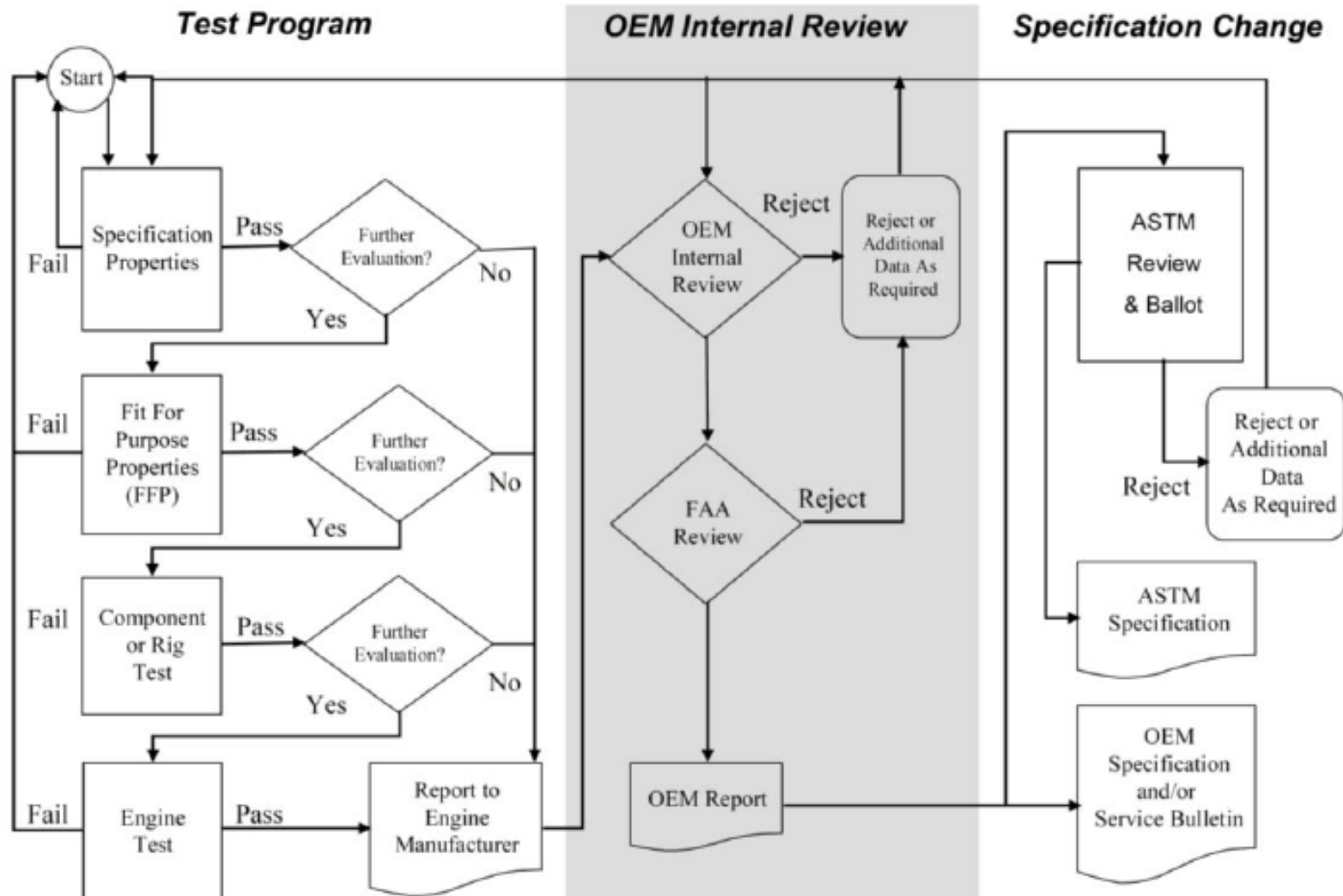
Conventional Jet Fuel

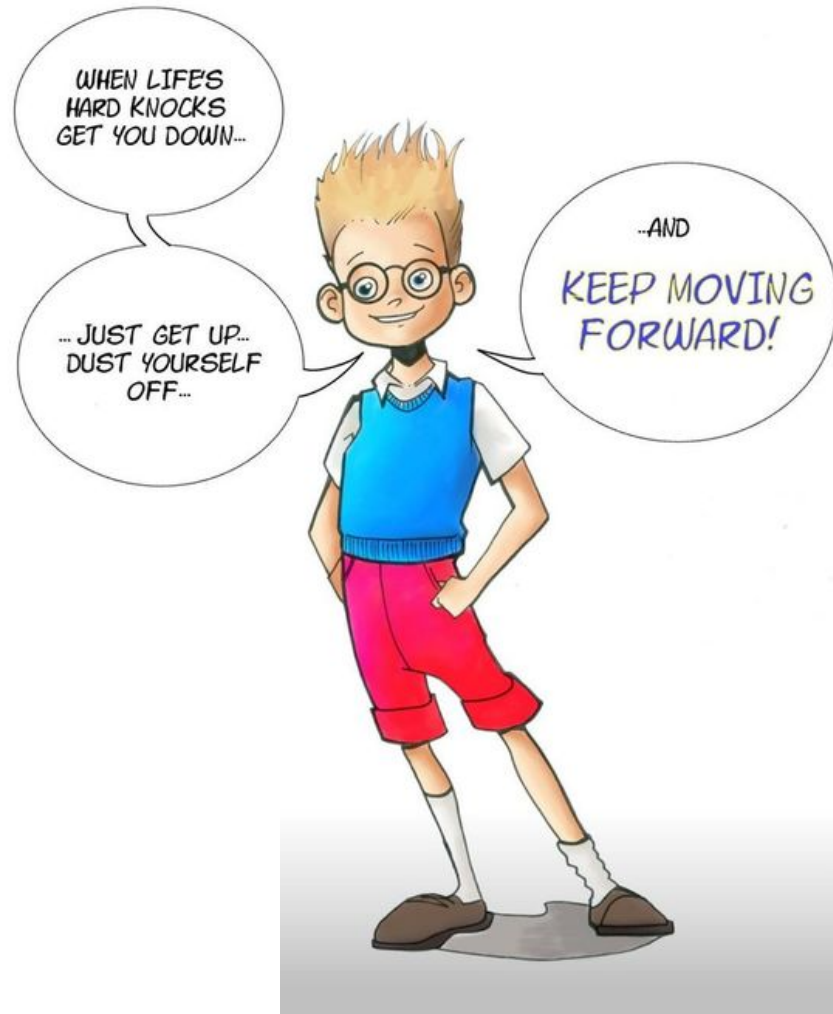
**Re-Certification
NOT Required**



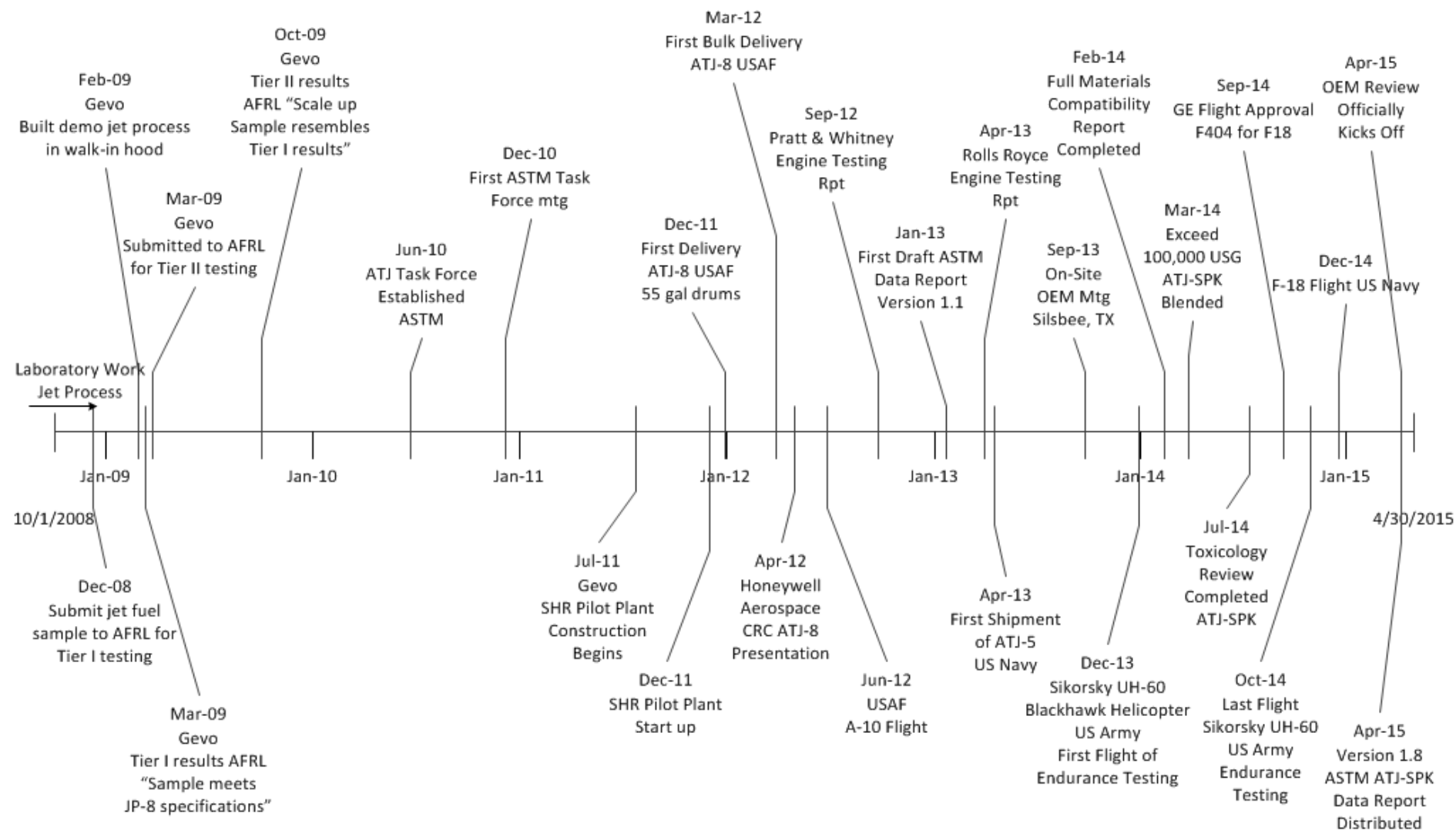
Standard Practice for Qualification and Approval of New Aviation Turbine Fuels and Fuel Additives

Schematic of the overall qualification process for new fuels





ATJ-SPK Development Timeline

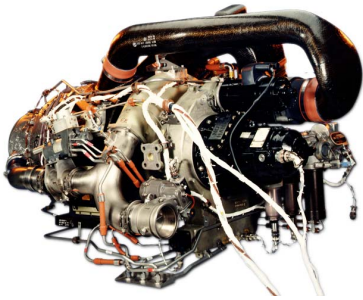


- ASTM Task Force in ASTM D02-J6 Initiated in June 2010
- Group of producers assembled (Fall 2010)
- First task force meeting with engine OEMs at (Dec 2010 ASTM)
- Task Force meetings held at both 2011 ASTM and CAAFI meetings
- Task Force was broken into two main areas:
 - ATJ-SPK (paraffins) - Current Research Report
 - ATK-SKA (w/aromatics) – Drafting Research Report
- Over 100,000 gallons of ATJ-SPK 50/50 blend has been produced and flown.
- Gevo operates a demo scale facility in Silsbee, TX which has been operating 24/7 for the past 3 years producing ATJ-SPK.
- Extensive testing has also been completed on ground diesel engines through work funded by US Army at SwRI.

ATJ-SPK Testing Completed

- AFRL Fit-for-Purpose testing – 2009-2013
- Rolls Royce AE3007 testing 2012
- GE TF34 engine testing 2012
- US AFRL A-10 flight 2012
- Goodrich fuel gauging analysis 2012
- Pratt & Whitney Canada PW 615F testing
- Honeywell G230 and 131-9 testing 2011.

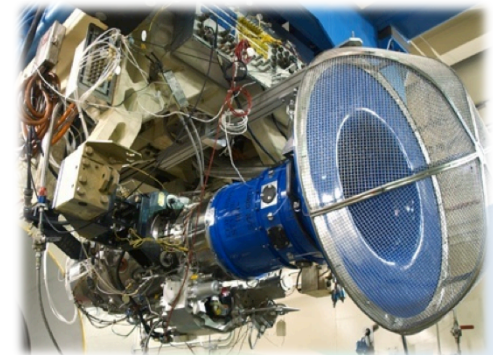
Honeywell



Rolls-Royce®



GE Aviation





Thank you

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