



ATTACHMENT 1

POWERPLANT GROUP CHAIRMAN'S FACTUAL REPORT

ENG14IA001

**Engine S/N V12069 Components Shipped to Pratt & Whitney Materials Lab
with Workscope
(2 Pages)**

NTSB Investigation ENG14IA001

V12069 Hardware List of Returned for Materials Lab Analysis with *Workscape*

High Pressure Turbine

- HPT Stage 1 Blades (64 blades, 10 with part span fracture)
Examine fracture surfaces on blades
- Stage 2 Blades (70 blades, 2 fractured below shroud)
Examine fracture surfaces, SCC evidence and temperature exposure
- Stage 2 Hub and Heatshield
Determine temperature exposure
- Stage 2 Retaining Plate (1 ea.)
Visual review, examine fracture surface
- Stage 2 Sideplate locks (any found)
Visual review
- HP Shaft Rear Retaining Nut (1 ea.)
Visual review
- Stage 1-2 Airseal
Visual review
- Stage 1 Hub (visual and bore diameter)
Visual review and bore diameter (growth)
- Stage 1 Inner and Outer TOBI Airseals
Visual review
- HP Turbine Case & Vane Assembly
Visual review

Low Pressure Turbine

- Stage 3 disk (2 fragments in hand from NTSB)
Hardness & microstructure (temperature exposure)
- Stage 5 disk (1 ea.)
Hardness & microstructure (temperature exposure)
- Stage 6 disk (1 ea.) – Hardness and microstructure, bore diameter
Hardness & microstructure (temperature exposure), bore diameter
- Stage 7 disk
Visual review and hardness
- Stage 7 IAS
Hardness & microstructure analysis
- LPT Case Sections (including remaining vane, airseal and transition ducts)
Visual review
- Thrust Balance Seal
Visual review, hardness & microstructure analysis
- Stage 7 Blades (89 ea.)

Examine fracture surfaces
Turbine Exhaust Case (remaining outer case)
Visual review

Miscellaneous

LP Shaft
Visual review and hardness
P3/T3 probe
Visual review and functional test
#5 Bearing Oil Scavenge Elbow
Visual review

#4 Bearing Compartment

Oil Scavenge Tube (1 ea.)
Visual review and X-Ray for weld cracks
Oil Pressure Tube
Visual review
Oil Pressure Tube Heatshield (2 parts)
Visual review
Buffer Air Tube (3 tubes)
Visual review
Buffer Air Tube Heatshield (2 parts)
Visual review
Front Compartment Heatshield (plus fragments)
Visual review
Front Cooling Duct
Visual review
Front Compartment liberated Studs & Nuts
Examine fracture surfaces and material conformity
"C" seals on Scavenge and Supply Tubes
Visual review
Carbon Seal and Carrier (Front and Rear)
Visual review
Carbon Seal Plates (front and rear)
Visual review
Scavenge Elbow and mating hardware
Visual review
Bearing Support
Dimensional checks