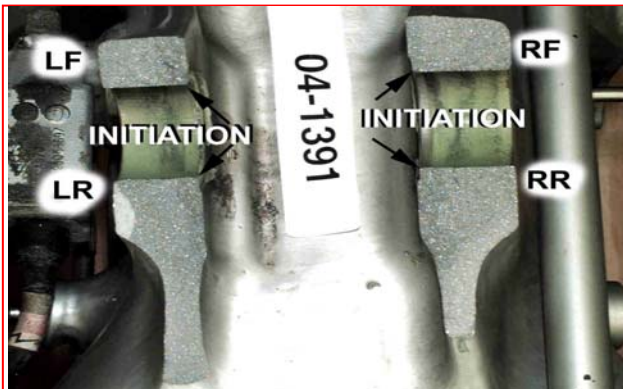




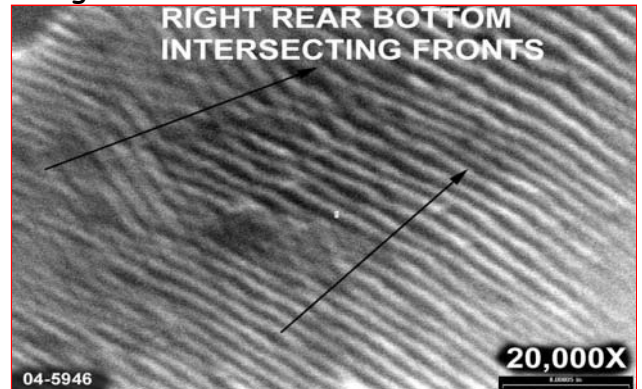
METALLURGICAL LABORATORY FAILURE ANALYSIS CASE STUDY

Description	Failure in Al alloy A356-T6 aircraft nose landing gear casting
Problem	Nose landing gear failure raised a concern of a fleet-wide problem
Analysis	Nose landing gear failed because of fatigue cracking in a low damage tolerant microstructure (interconnected Si needle network)
Resolution & Recommendations	Correct T6 heat treatment improved ductility. EC conductivity measurements could be used to non-destructively screen the fleet for improper heat treatment (brittle microstructure)

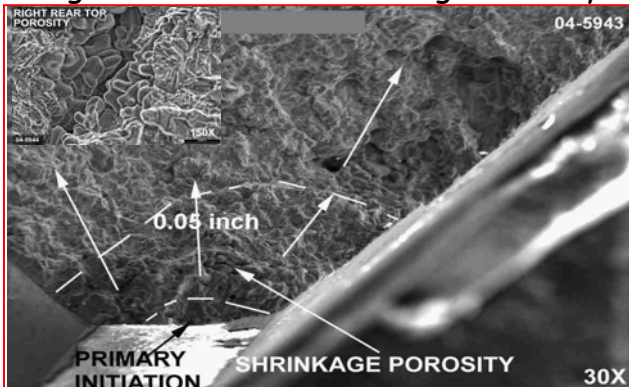
Fracture Location Overview



Fatigue Striations



Fatigue Initiation at Shrinkage Porosity



Improvement in Ductility

