



SUPPORTING AIRFRAME, STORE CARRIAGE AND ENGINE INTAKE
DESIGN, FROM CONCEPT TO CERTIFICATION

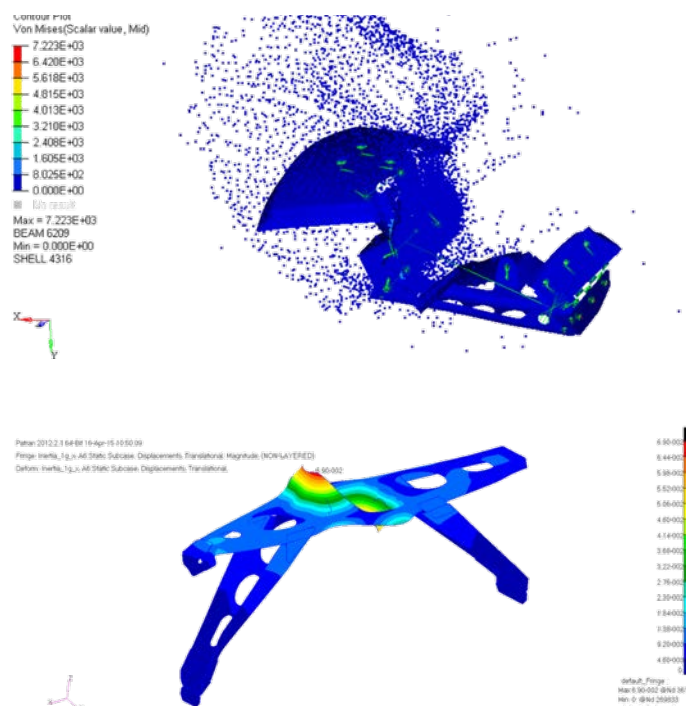
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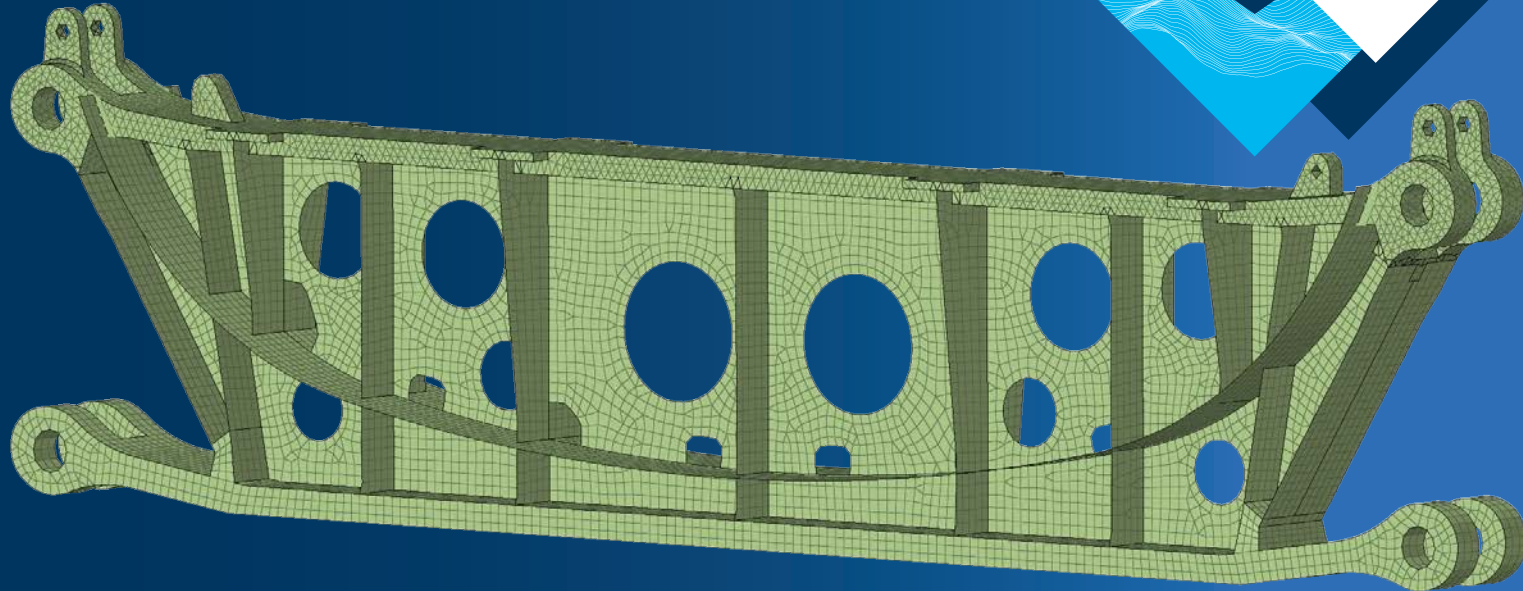
CAPABILITY STATEMENT

- Linear analysis, including entire vehicle.
- Load path determination through complex structural assemblies and components (metallic & composite).
- Complex large data correlation from FEA.
- Detailed 3D solid models generating accurate stress fields in close proximity to structural features.
- Buckling analysis.
- Normal modes and vibration response.
- Thermal environment analysis.

- Reverse engineering assessment of buckling onset and post-buckled structural behaviour.
- Modelling of progressive material damage and failure (metallic and composite).
- Hyperelastic material characterisation based on coupon testing & component behaviour.
- Detailed analysis of contact conditions at interfaces and fastened joints.
- Analysis of non-linear geometrical behaviour such as beam-column effects.
- Bird strike analysis on airframes, intakes & Filters, including constraints using contact.
- Dynamic response analyses under various excitation, including damping & contact.
- 3D representation of composite lay-up and sandwich panels.
- Thermal effects between composite & metallic structure.
- Tyre burst impact analysis.

- FEA Approval for A350 FTE & A400M.
- QinetiQ GmbH Structural CVE for Pilatus PC-12 Modifications.





EXPERIENCE AT A GLANCE

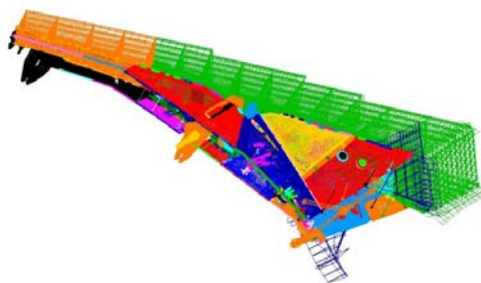
CASE STUDIES

FEA HIGHLIGHTS

- Linear static analysis of A400M trailing edge fittings & thermodynamic analysis of systems and structures on A400M wing.
- Non-linear static analysis of A380 wing tip and fence.
- Linear static analysis of A320 leading and trailing edge structures, plus complex solid modelling of sharklet wing tip fittings.
- Bird strike analysis of multiple aircraft wing leading edges & helicopter intakes.
- Hyperelastic analysis of rubber duct against multiple physics domains.
- Analysis of structural test specimens in support of the test definition and rig design.
- Reverse engineered PC-12 forward fuselage DFEM to support introduction of equipment bay. Integrated DFEM into aircraft GFEM.
- Dynamic response of antenna on Eurofighter Typhoon fin & test rig, including contact modelling.
- Type 26 Frigate Composite Foremast.
- Wind Turbine blades.
- Helicopter equipment racks.
- Random vibration analysis of an underwing mounted pod.
- Aluminium Metal Matrix solid fitting development.

AIRBUS A350XWB FTE

- Developed entire A350 IFTE Linear Static GFEM and load correlation effort on behalf of GE Aviation.
- Correlated the entire load case input through the GFEM, using SQL large data techniques for a potential 100million load case combinations.
- Static analysis of handling and assembly loads on A350 wingbox structures.



SOFTWARE

- Powerful multi-processor computers are available to allow the rapid analysis of large complex models using state-of-the-art proprietary software such as HYPERWORKS, ANSYS and MSC PATRAN/NASTRAN.

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FINITE ELEMENT MODELLING CAPABILITY STATEMENT



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