

BASAWARAJ VITHALREDDY

Bangalore, INDIA

Mobile: +91-9620830099

E-mail: basawaraj503@gmail.com

AEROSPACE STRESS ENGINEER

8 YEARS OF EXPERIENCE

EXPERTISE FIELD: Static, Fatigue and Damage Tolerance analysis of Aircraft structural components.

CARRER PROFILE

Stress Engineer with eight years of experience in Static, Fatigue and Damage Tolerance analysis of **primary/secondary** aircraft structures such as **frames, stringers, brackets** and **lugs**.

- Experience in Airbus and Bombardier methodologies and tools
- Effective communication skills and excellent team player with leadership qualities.

TECHNICAL SKILLS

- ❖ Static, Fatigue and Damage Tolerance analysis of primary / secondary aircraft structures.
- ❖ Expertise in classical Hand calculation.
- ❖ Experience in justification and certification phase (A350 XWB).
- ❖ Experience in certification phase of Bombardier Global 7000.
- ❖ Preparation of technical reports and other required stress deliverables like ACD4 / ACD6.
- ❖ Good experience on Airbus Static/Fatigue methods and tools.
- ❖ Experience in Finite Element Analysis (FEA) using Patran, Nastran and Hypermesh.
- ❖ Experience on Airbus Concession activity.
- ❖ Programming of automatic stress tools using the VBA code

TOOL SKILLS

- ✓ **ISAMI for static, Fatigue and Damage Tolerance (Airbus tool)**
- ✓ **ACSA (Airbus tool) :(Load extraction from Global model)**
PSN3, PSN4, PSN8, PSN13, PSN15 and PSN25
- ✓ **ASSIST (Airbus tool)**
- ✓ **SAFE (Airbus tool)**
- ✓ **MSC PATRAN, and NASTRAN**
- ✓ **NASGRO (Bombardier tool)**
- ✓ **VBA (Visual Basic for Applications) macros**
- ✓ **Stress Dossier (Airbus tool) or report writing**
- ✓ **PDM and VPM (Airbus tool) : Products, parts and BOM extraction**
- ✓ **Very good knowledge of standard office tools (Excel, Word...) and computer systems (Windows & Unix).**
- ✓ **Basic working knowledge on CATIA V5, Hypermesh PDM and VPM (Airbus tool)**
- ✓ **Zamiz, SAP, JT2Go, Product View**

PROFESSIONAL EXPERIENCE

Organization : AXISCADES Engineering Technologies Limited

Duration : Jan 2018 to till date

Designation : Lead Engineer

Airbus Concession Activity:

- A330 NEO and CEO concessions are validated for Nose and Centre fuselage structure.
- Parts are analysed against different nonconformities like hole elongation, incorrect hole drilling, thickness blend out etc.
- Stress validation is given from static and fatigue point of view.
- ISAMI filled hole analysis is carried to find the Boltbearing margins.
- Tension net section, buckling and Instability analysis of parts performed.
- Fatigue life is recalculated using ISAMI 1D joint and the classical fatigue analysis

Organization : Enlivening technologies India Pvt. Ltd., Bangalore
Duration : Oct 2016 to Nov 2018
Designation : Senior Mechanical Engineer

MAJOR PROJECTS:

Aircraft : Bombardier Global 7000
Clients : Stelia Aerospace Canada.

➤ *Damage Tolerance and Residual Strength analysis of Forward bulkhead / pressure floor joint (centre fuselage)*

The study involves calculating the inspection details of Pressure floor, bulkhead and corner angle connecting them. The cracks at fastener and radius location are analysed. DFEM model is used to extract the shell stresses and pin loads. GOLIHAT tool used for the spectrum and DT stress survey. To have the precise stresses at the radius of corner angle , 3D FEM is modelled in Hypermesh. For the critical location, equivalent stress is found by clocking the stresses and NASGRO models are used to find the threshold and repeat intervals. Results are reported in the Stress dossier.

➤ *Damage Tolerance and Residual Strength analysis of Transition panel / pressure floor joint between frame 38 and frame 42 (centre fuselage) .*

The study involves calculating the inspection details of transition panel, pressure floor and longeron connecting them. This study involves analysis of Cruciform too. DFEM model is used for the extraction and GOLIHAT is used for the spectrum stress survey. The critical locations are identified based on the spectrum and geometry. equivalent stress is used for finding the threshold and repeat inspection intervals.

Aircraft : A350XWB - 900, A350XWB - 1000,
Clients : Premium AEROTEC GmbH, Germany

➤ *Fatigue and Damage Tolerance analysis Rear Pressure Bulkhead (RPB) junction analysis.*

The study is carried to analyse the RPB connection with surrounding parts such as L-clip, Y-clip. Study involves the extraction of loads and spectrum analysis to find the equivalent stress & spectrum. Rationales for selection are carried out based on spectrum results and geometry parameters. 1-D and 3-D joints are analysed along with DFEM model to find the Kt value. AFI calculation is used for evaluating the Fatigue life and RF for each junction.

Corner crack and Through crack models are analysed to evaluate the Damage tolerance of the critical fastener locations and notches. Residual strength is analysed using the R-curve / fracture toughness of material. Finally Stress dossier and ACD6 is created to document the analysis.

Organization : Safran Engineering Services India Pvt. Ltd., Bangalore
Duration : July 2011 to Sep 2016
Designation : Mechanical Engineer
Aircraft : A350XWB - 900 and A350XWB - 1000
Client : Labinal, France

MAJOR PROJECTS:

- *Fatigue and Damage Tolerance analysis of Splices and shovels on Orbital strap at Fr 20.*
The super stiffener extractions are done at Fr20 junctions having metallic Splices / Shovels. These extractions are used for launching the spectrum. Based on the results, critical junctions are chosen to study. The Air and Ground cases are used for the 1-D joint analysis at sections of splices / shovels. Obtained critical fastener location from 1-D joint module is used for the 3-D joint module analysis. The 3-D joint results along with AFI are used to calculate the Fatigue Life and RF.
- *Static and Fatigue structural analysis of Central Floor rails at S11 / S12 junction.*
The study involves the analysis of Lug, pin, web and flange of rails at Fr12 junction. The beam loads are extracted with PSN tools and lug/pin analysis is done with the ISAMI lug module. Web and flange analysis uses 1D joint and DHR module.
- *Static, Fatigue and Damage Tolerance analysis of Frame Splicing at Frame 13 to Frame 19*
The study involves the F&DT analysis of frame splicing at Str 30 - 33. Super-stiffener, Frame shear load (beam), Frame to skin and panel flows are extracted. The CFA is carried out to distribute the loads in panel and frame. Fasteners on the web are analysed using ISAMI BJ2D or Ecliss tool and ISAMI frame splicing module. The fasteners on skin connected to backsplice and corner is analysed with the help of ISAMI Filled hole analysis. For fatigue, spectrum is launched using Frame loads. The ISAMI DFEM Frame splicing model is used with simplified fasteners to find the critical fasteners. Only for the critical fasteners volumic (3D) DFEM Frame splicing is analysed to calculate the equivalent stress. For hybrid junction GAG is done to calculate the equivalent stress. Finally using AFI, Fatigue Life and RF is calculated.
- *Static stress validation of External Rails junction at Frame 12 and Frame 13*
The study involves the analysis of rail section, rail splice. The junctions of Shear web, tension fitting and Fr12 are analysed. The unitary loads are extracted on beam, quad and super-stiffener using the PSN tools and these unitary loads are combined using the combination excel. The parts/ fasteners are studied against required criteria's bearing, shear, bearing transition, and buckling.
- *Fatigue and Damage Tolerance analysis of Spar junctions on floor at Crossbeam 6, 7, 9 and 12*

- *Static stress structural validation of System Brackets and Door, Uplock & Actuator Interface (Lug analysis)*
- *Fatigue and Damage Tolerance analysis of Fairing probes installation: This study involves the F&DT analysis of Pitot and MFP probes installed at Fr2 and Fr3.*

ACHIEVEMENTS

- ❖ Received High-flyer award (2015) at Safran Engineering Services, India.
- ❖ Published a journal paper “*Analysis and Optimization of Flow and heat transfer in a liquid cooling system for LED Arrays*”, journal of Microelectronics and Electronic packaging (2011).
- ❖ Secured a District first rank in the Govt. Pre-University and announced free education by state government.

EDUCATION

2011	Bachelor of Engineering in Mechanical Engineering - Secured CGPA of 8.44 PES Institute of Technology, Bangalore, INDIA
2007	Pre-University College (XII) - Secured 83.83% Amareshwar P.U. College, Aurad(B), Karnataka, INDIA
2005	S.S.L.C (X) - Secured 84.96% Nalanda Pupils High-school, Sundhal, Aurad(B), Karnataka, INDIA

PERSONAL PROFILE

Date of Birth :	02 nd July 1989
Gender :	Male
Marital status:	Married
Nationality :	Indian
Languages :	English, Kannada, Hindi, Telugu, Marathi

DECLARATION

I hereby declare that the above written particulars are true to the best of my knowledge and belief.

Date:

Place: Bangalore

Basawaraj Vithalreddy