Programme	ABC_1
Variant	4X4 drive
Design phase	1
Analysis type	Durability analysis
Component name	Front suspension bracket
Loading details	Xyz_load_case
Part number and revision	Xxxx_01_dh/01
Engineer name	Chidananda G
Date	11 Nov 2024

Objective of the study

In this study, replaced the leaf-spring suspension system with an air suspension system to reduce the chassis' dynamic load, evaluating the chassis' durability.

Geometry details

4 meter length H type as shown in figure 1

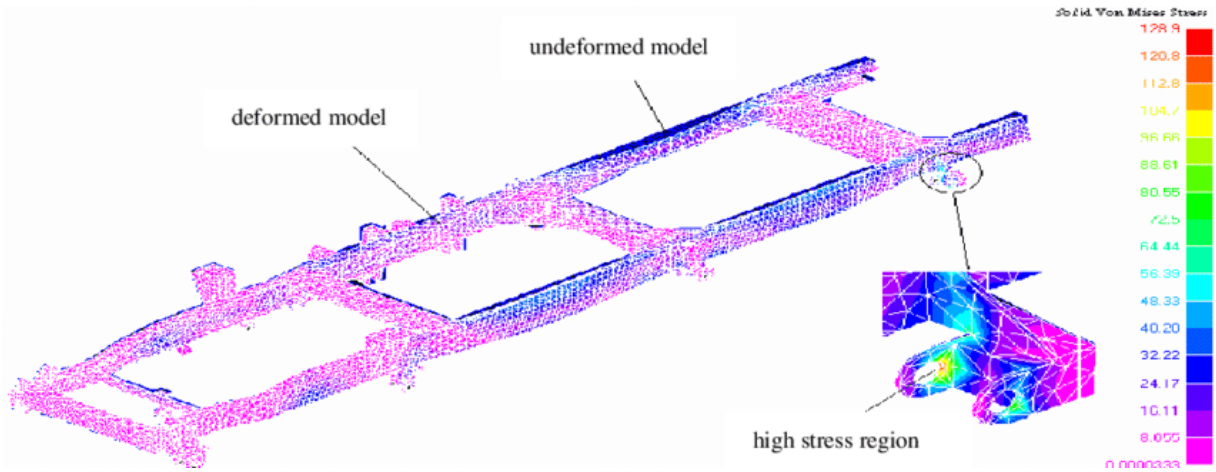

Figure 1

Material details

Made of steel young’s modules 2X10^5 N/mm2

Boundary condition

Six degree of freedom arrested at all four location of body mount region

Results

As a result, the chassis weight increased by 35.15 kg and the minimum fatigue cycle was larger than 10^6 cycles while employing the air suspension system. The durability study suggested increasing the corner radius at the fatigue point to strengthen the chassis structure. For the current load bracket was not able to meet the design criteria as shown in figure 2.

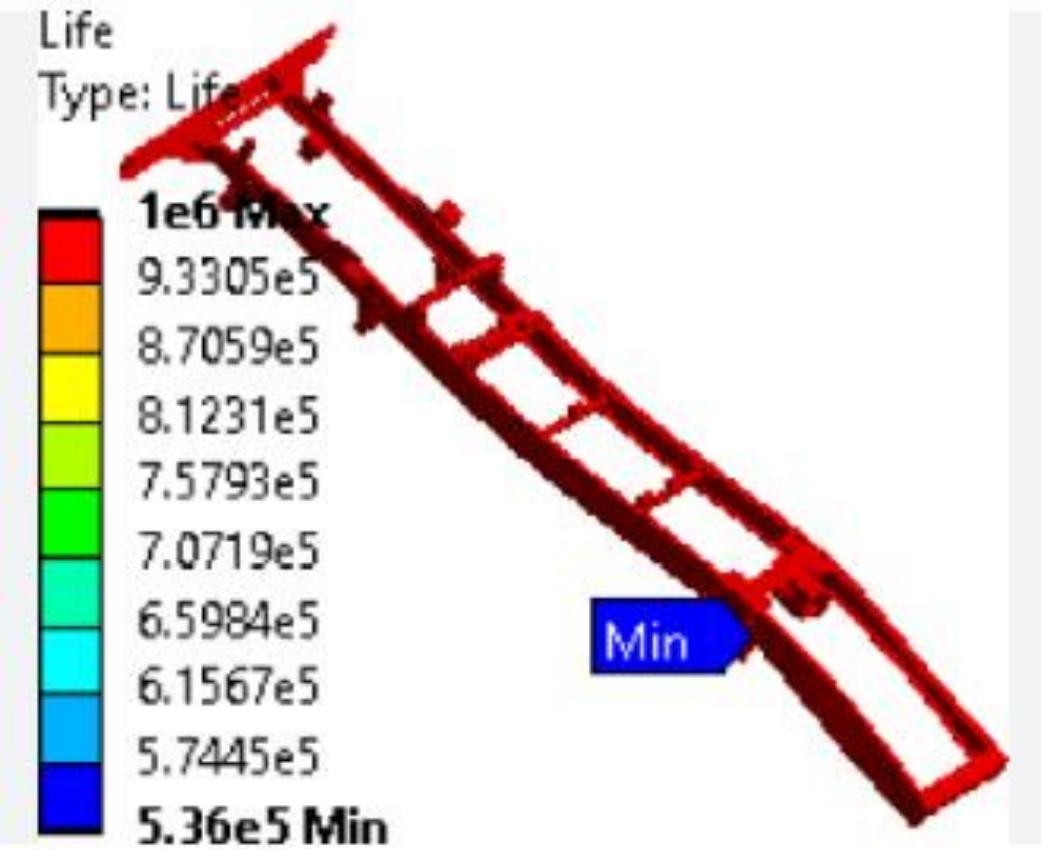

Figure 2