



Project No: **CO1120**

Re: **Toyota Land Cruiser Bent Radius Arm
(RAFTLC-DPF)
Finite Element Analysis Engineering Report**

Certification Number: **20200217-1120-01**

Prepared for:

CalOffroad

Date: **19th February 2020**

19th February 2020

Project No: CO1120-1
Toyota Land Cruiser Radius Arm (RALC0002)
1660kg increased front axle rating to VSB14

To whom it may concern,

As requested, we have assessed the aftermarket Land Cruiser radius arm to VSB14 loads for an increased front axle rating of 1660kg using FEA analysis. The analysis has been performed using supplied information and on a 3D CAD model approved by the client. Details of this design and the FEA analysis results are described in the following project data:

- Analysis Report: 20200217-1120-01

A brief overview of the upper control design is provided over-page.

Only the radius arm design has been assessed and the remainder of the front suspension has not been considered as part of this analysis. Furthermore, this analysis only considers the VSB14 loads and is in no way an assessment of the overall durability or manufacturing quality.

Finite Element Analysis (FEA) has been used to assess the performance of the radius arm design subject to loads and limits set out in the following reference documents:

- VSB14 "National Code of Practice for Light Vehicle Construction and Modification"

Based on the loading conditions and material properties used, the radius arm design is considered to comply with the strength requirements of VSB14 for a maximum front axle rating of 1660kg under the following conditions:

1. The forged radius arm of 645MPa capacity with nominal minimum dimensions as per the specification.
2. Forging parameters such as the forging temperature, manufacturing process, heat treatment and cooling rate, and their effect on material properties and residual stresses were beyond the scope of this study.
3. Full details of the analysis and results are provided in report 20200217-1120-01, and any other conditions or requirements specified in the most recent version of that report must also be implemented

Kind Regards,

Brett Longhurst,
Managing Director,
Bremar Automotion Australia Pty Ltd

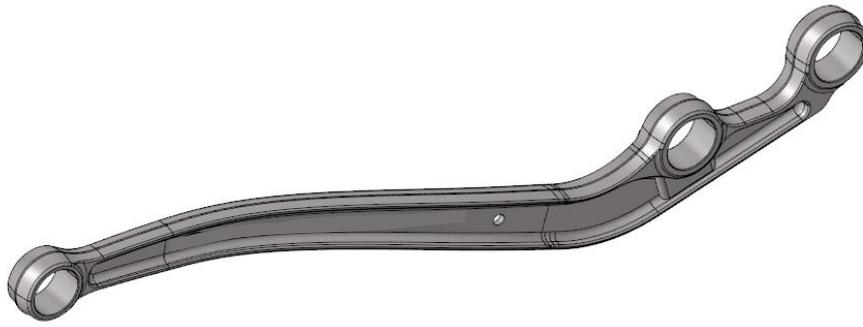


Figure 1: Radius Arm Design

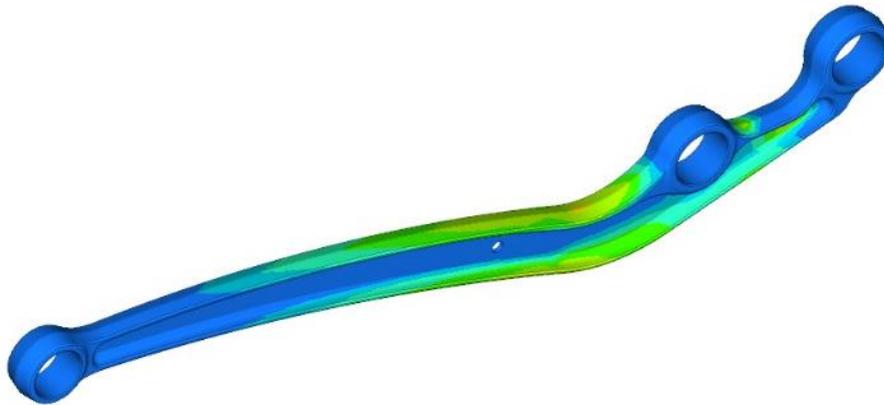


Figure 2: Radius Arm Mesh and Stress Contour