Docket No. SA-522

Exhibit No. 7-BB

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

Airbus FEM Calculation of Rear Main Lug

(13 Pages)

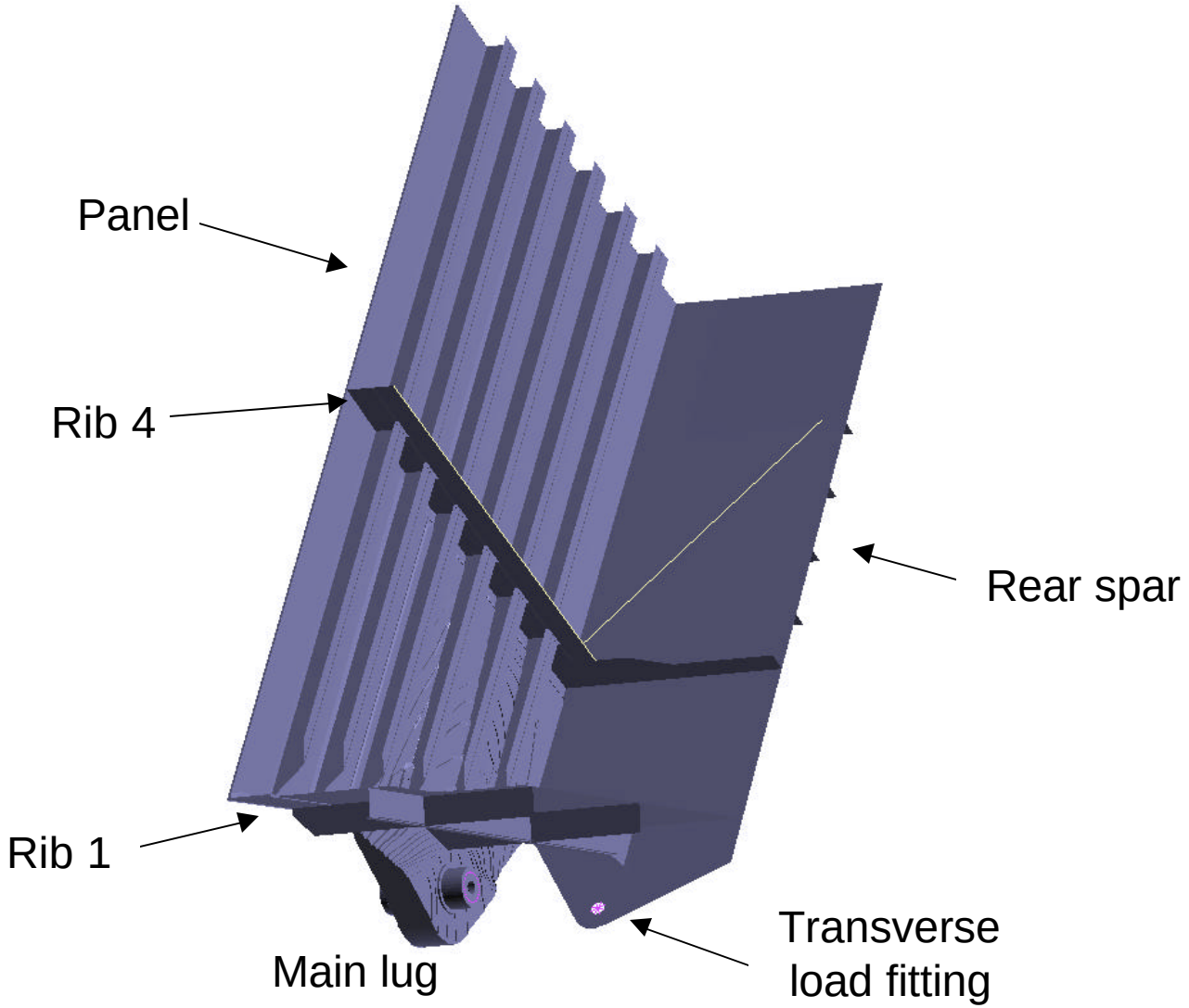
A300-600R vertical stabilizer

FEM-calculation of rear main lug :

- ***3D nonlinear FEM-analysis with main attachment fitting and surrounding structure***

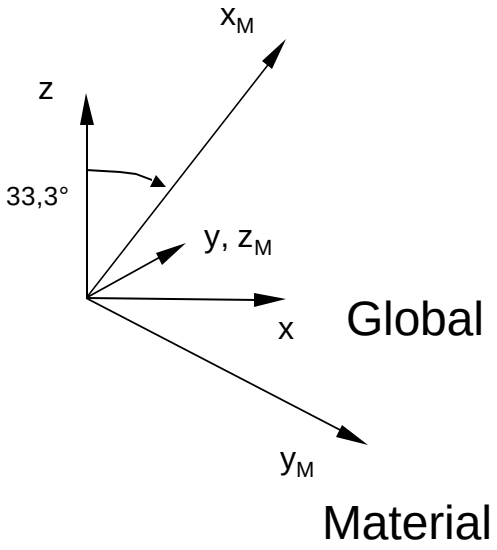
A300-600R Main lug

Nastran FEM model

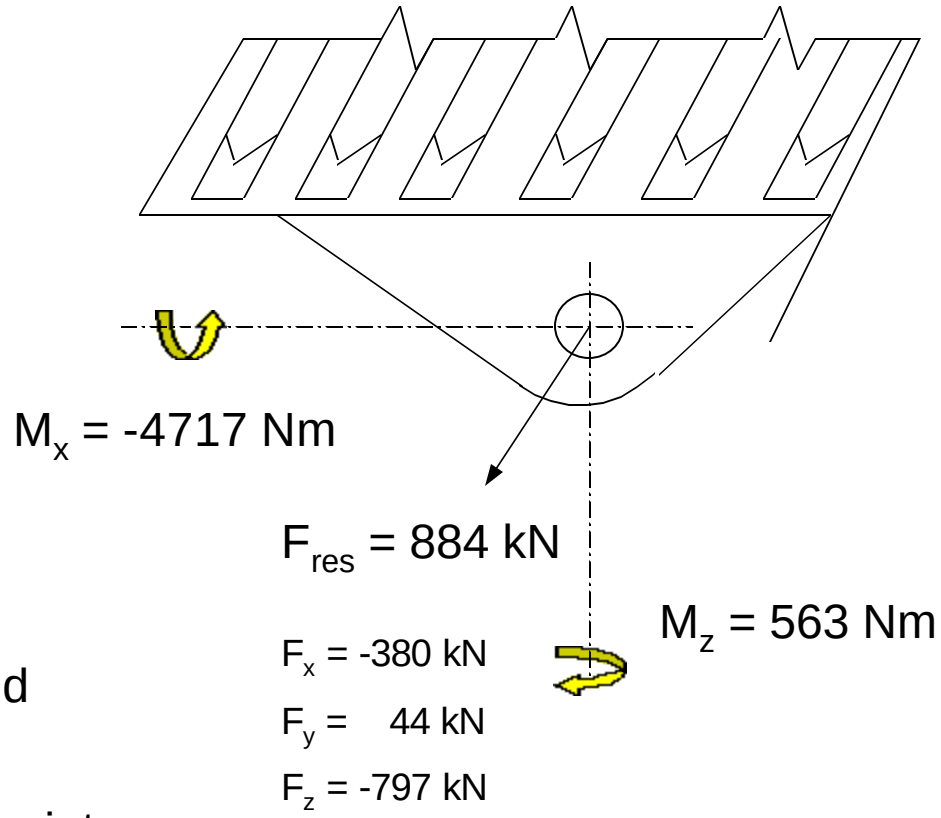


A300-600R Main lug

Material Coordinate System



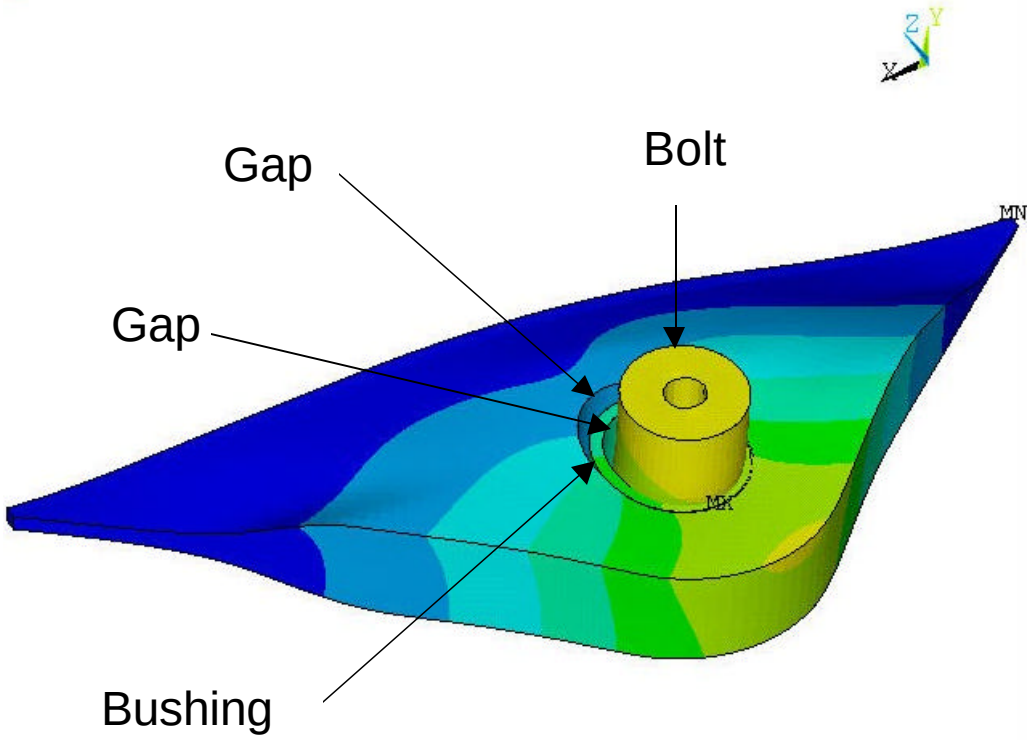
Load Vector – ultimate load case Y373_ls12



- Forces introduced via central node and MPC into bolt
- Moments are result of rotational constraint

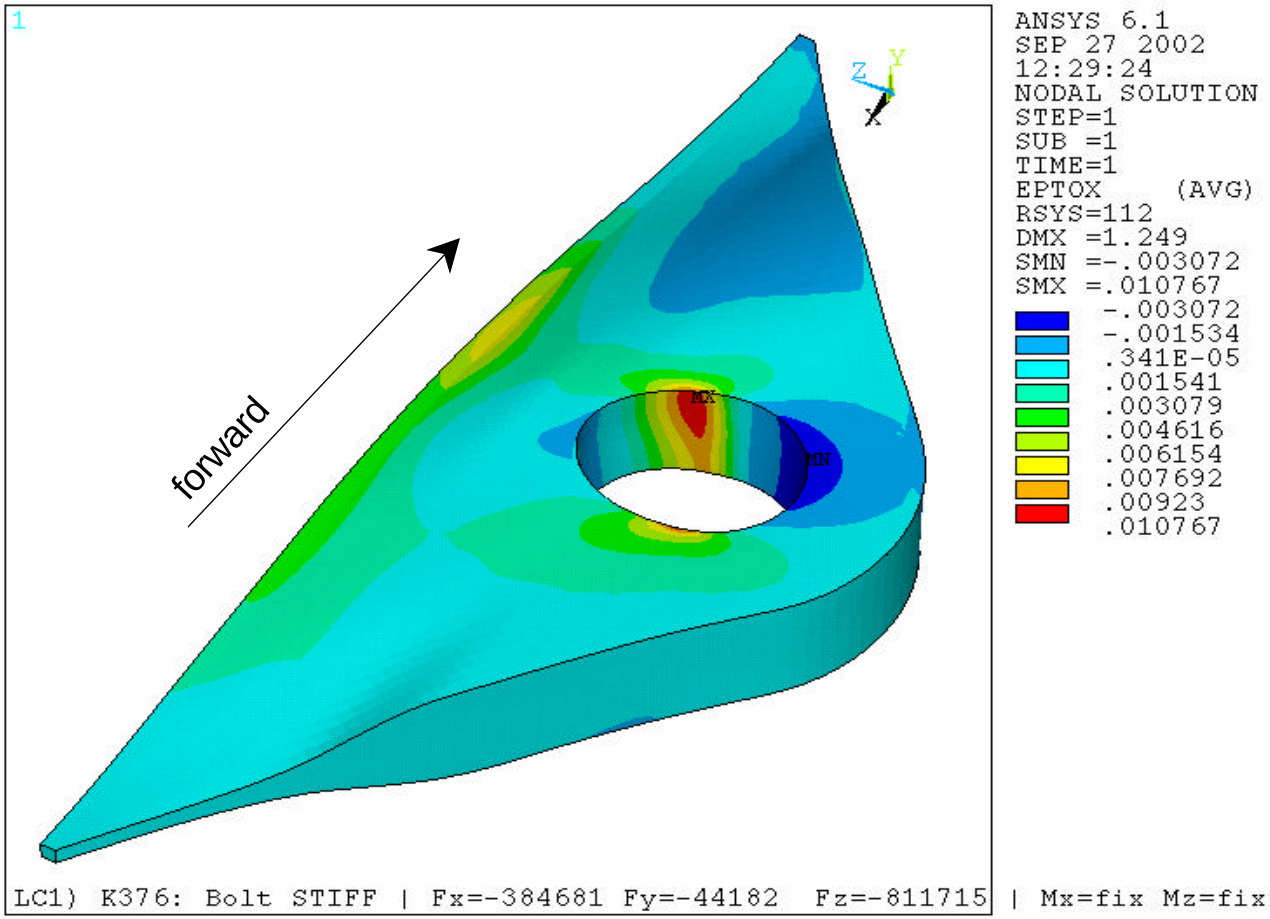
A300-600R Main lug

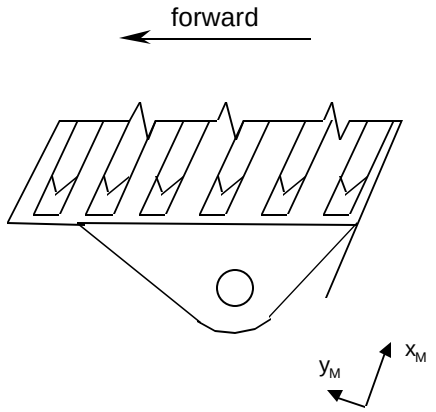
Ansys lug model with contact incorporated between pin, bush and carbon fiber lug



A300-600R Main lug

Normal strain e_x – preliminary calculation





A300-600R Main lug

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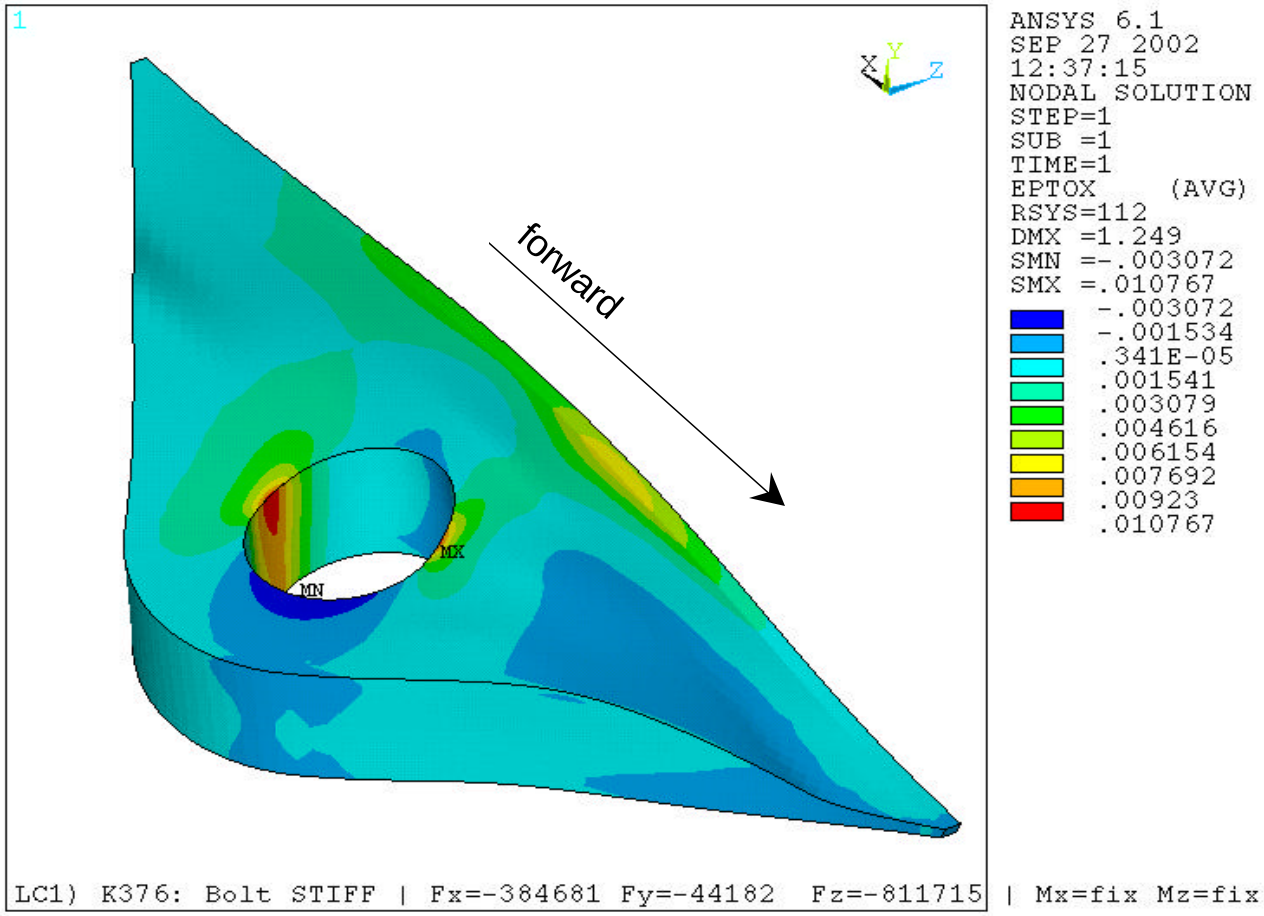

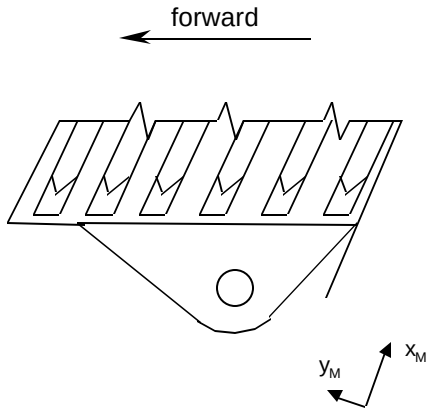

A300-600R Main lug

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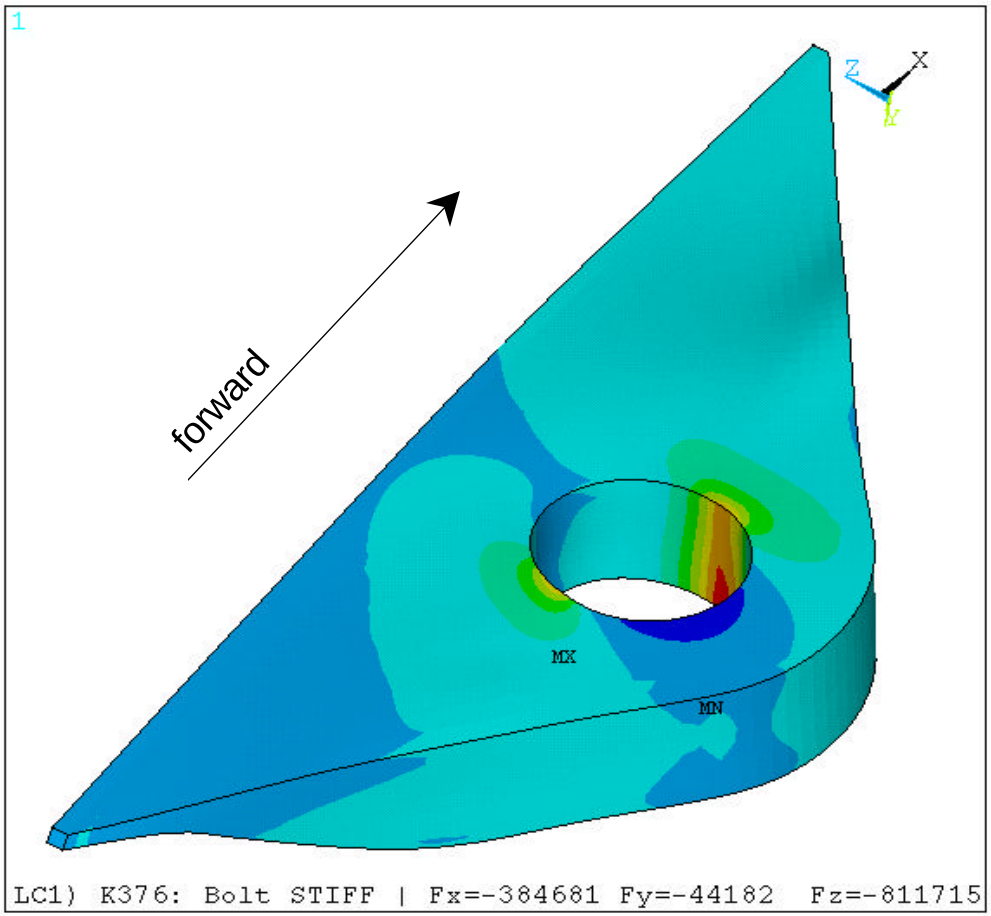

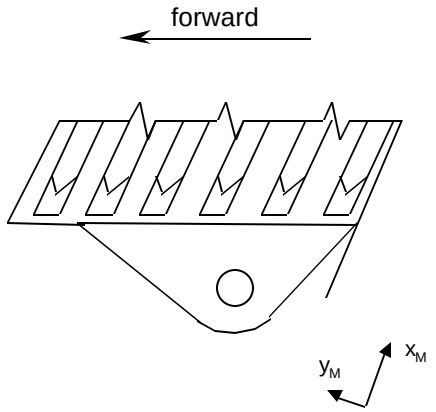

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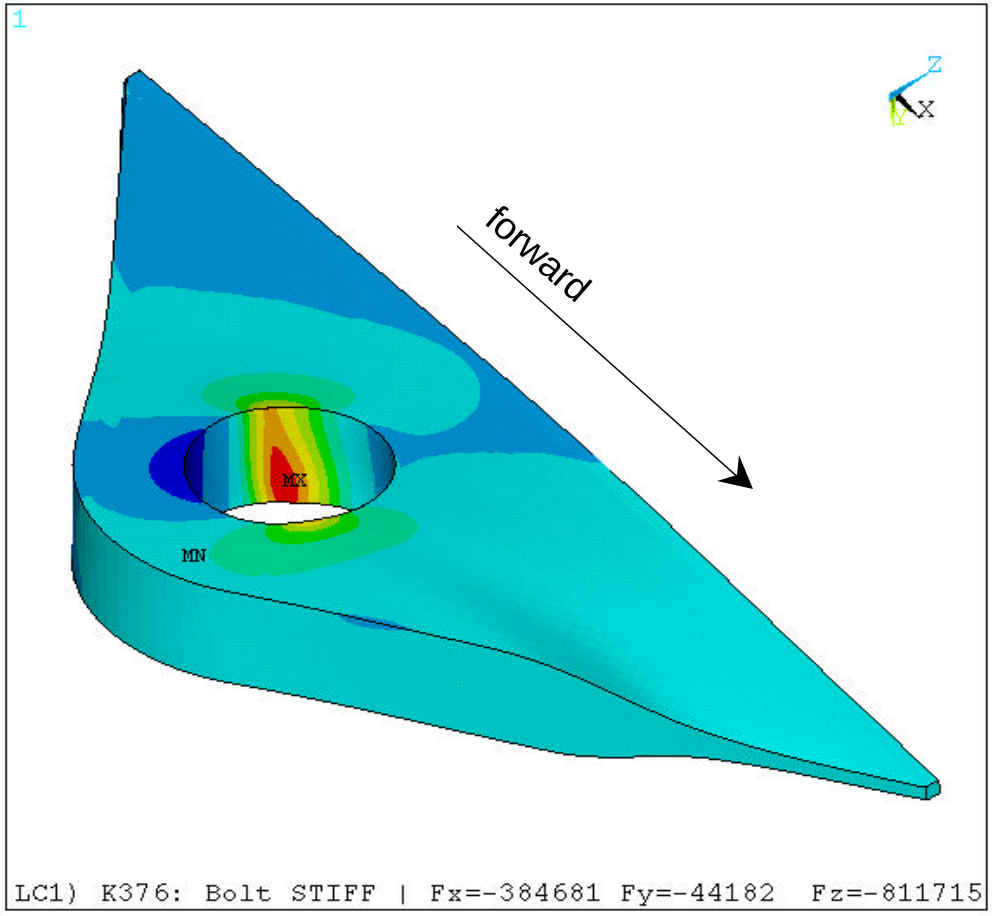
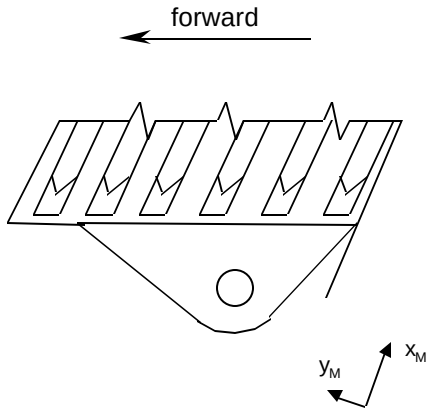
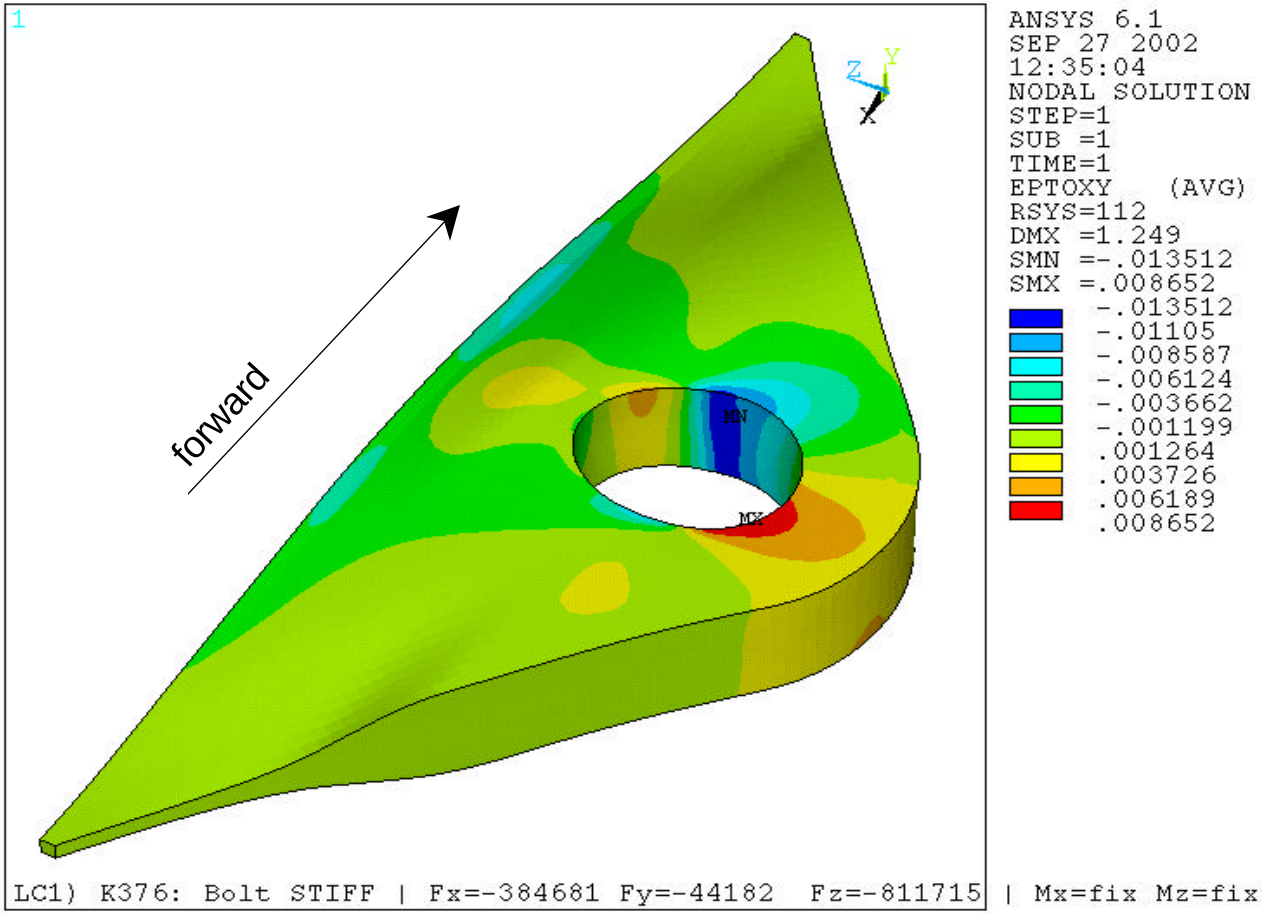
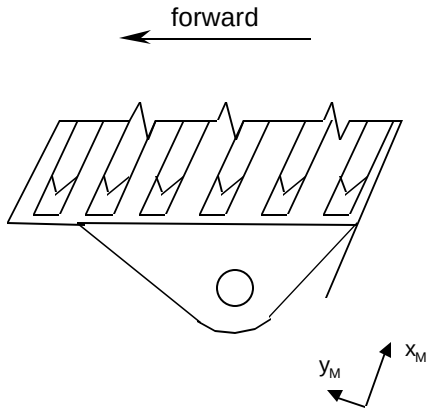




A300-600R Main lug

Shear strain g_{xy} – preliminary calculation





A300-600R Main lug

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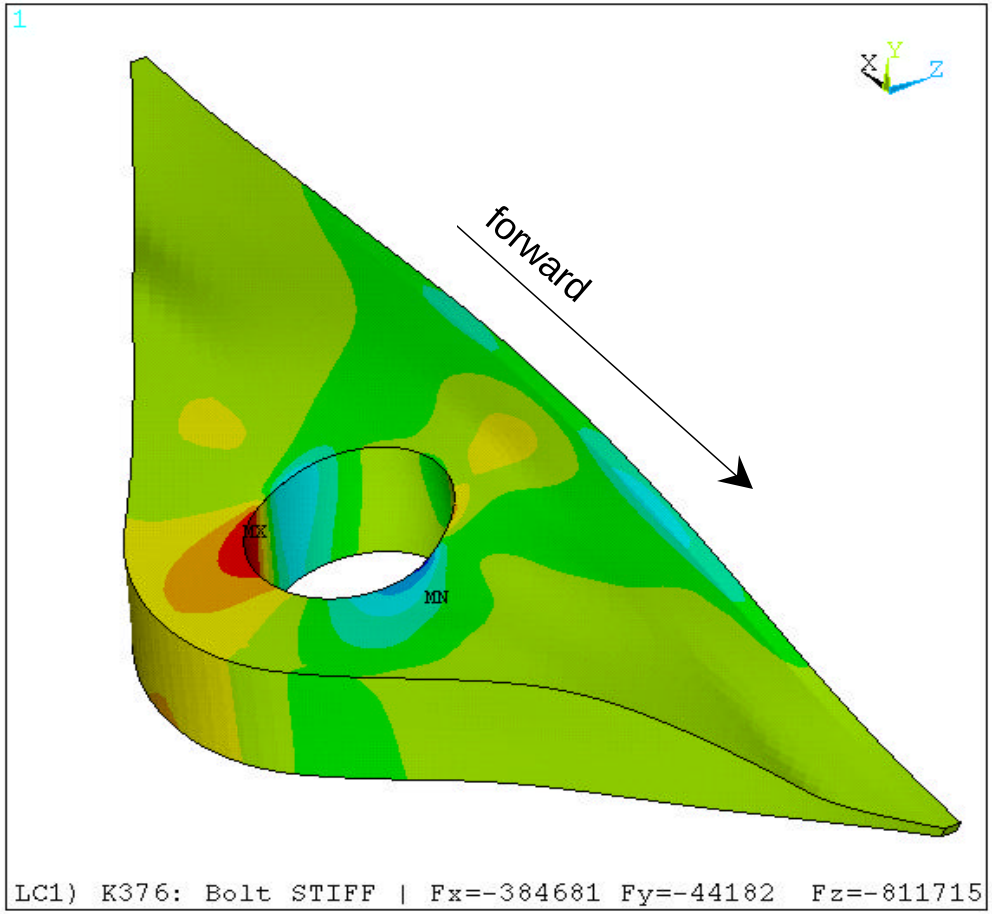

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RSYS=112
DMX =1.249
SMN =-.013512
SMX =.008652

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-.001199
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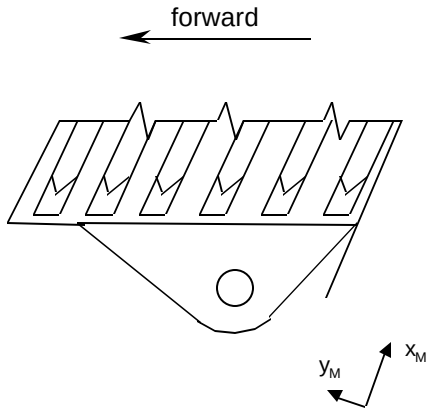
.003726
.006189
.008652



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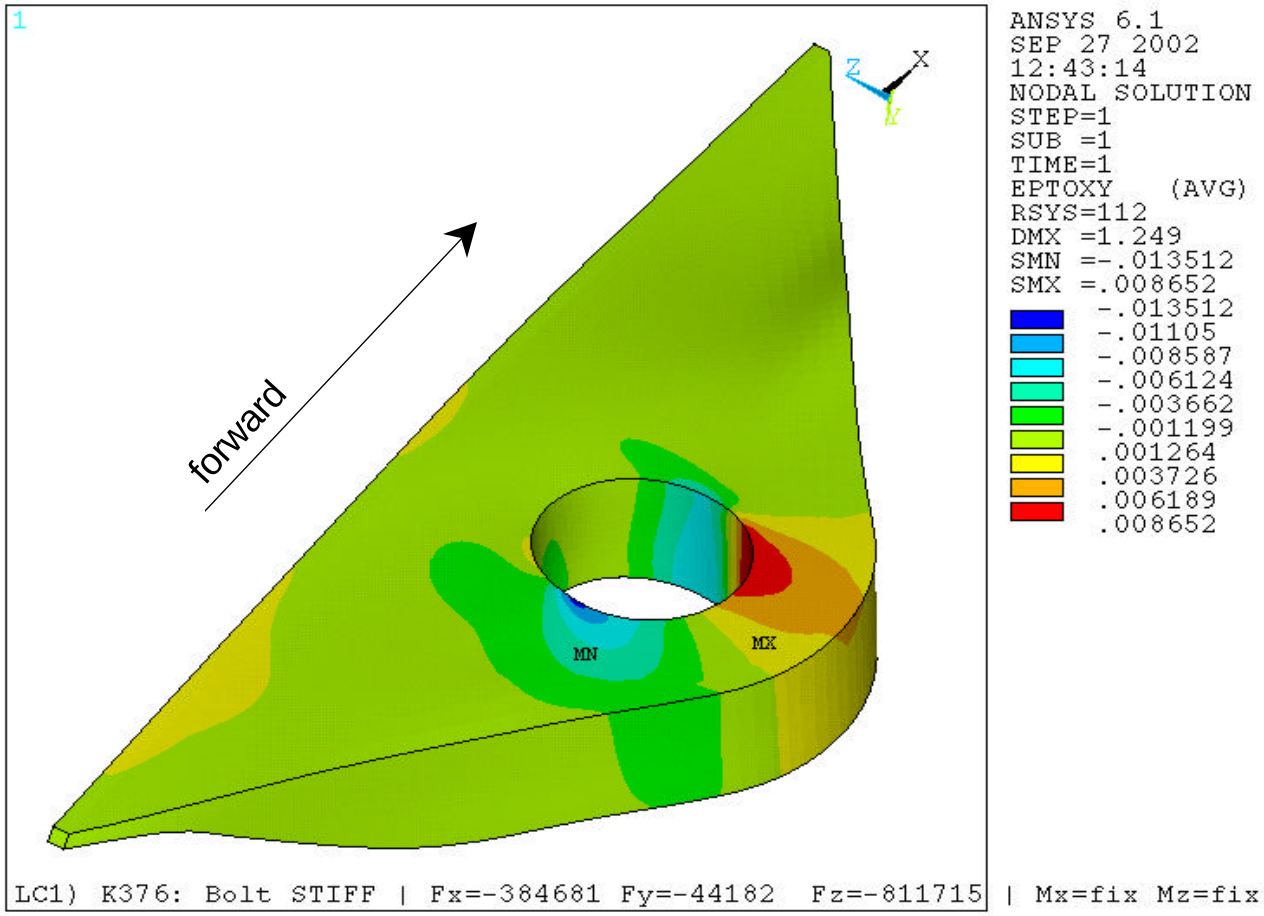

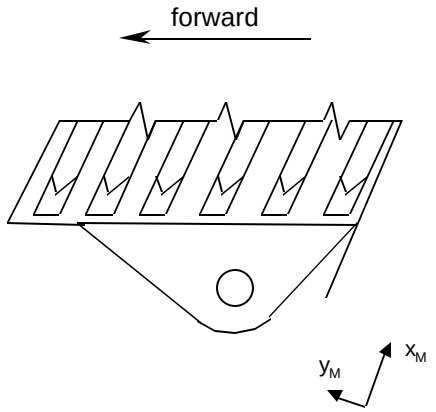

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