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OBJECTIVE

The objective of this project is to reduce the bounce of the forklift carriage. When a forklift drives over a bumpy surface the carriage of the forklift tends to bounce. This bounce is loud and can cause the operator to spill their load if severe enough.

BACKGROUND

- When going over a bump, the carriage tends to go up causing slack in the lifting chains
- When the carriage falls back down it is stopped abruptly by the tension in the lifting chain



- Mast
- Carriage
- Forks



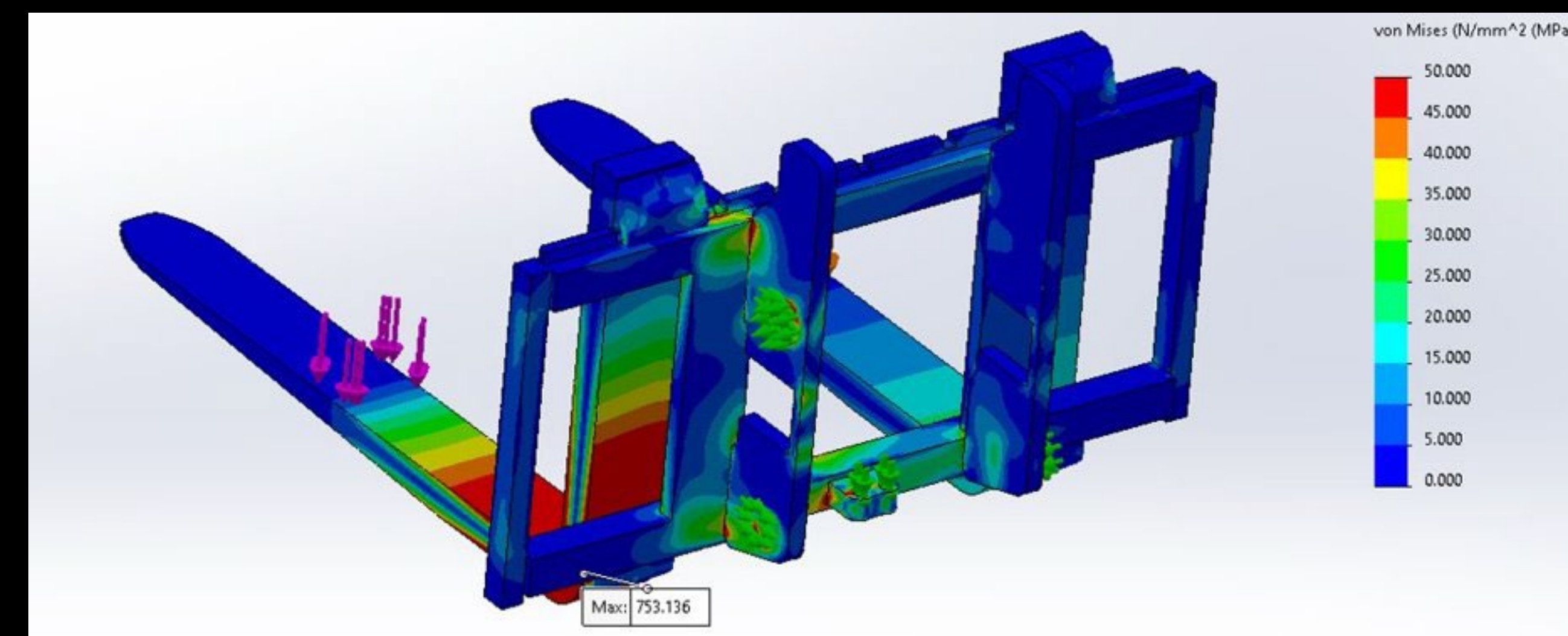
KEY REQUIREMENTS

- Reduce or eliminate bounce in the carriage and forks
- New design should fit onto existing forklift models

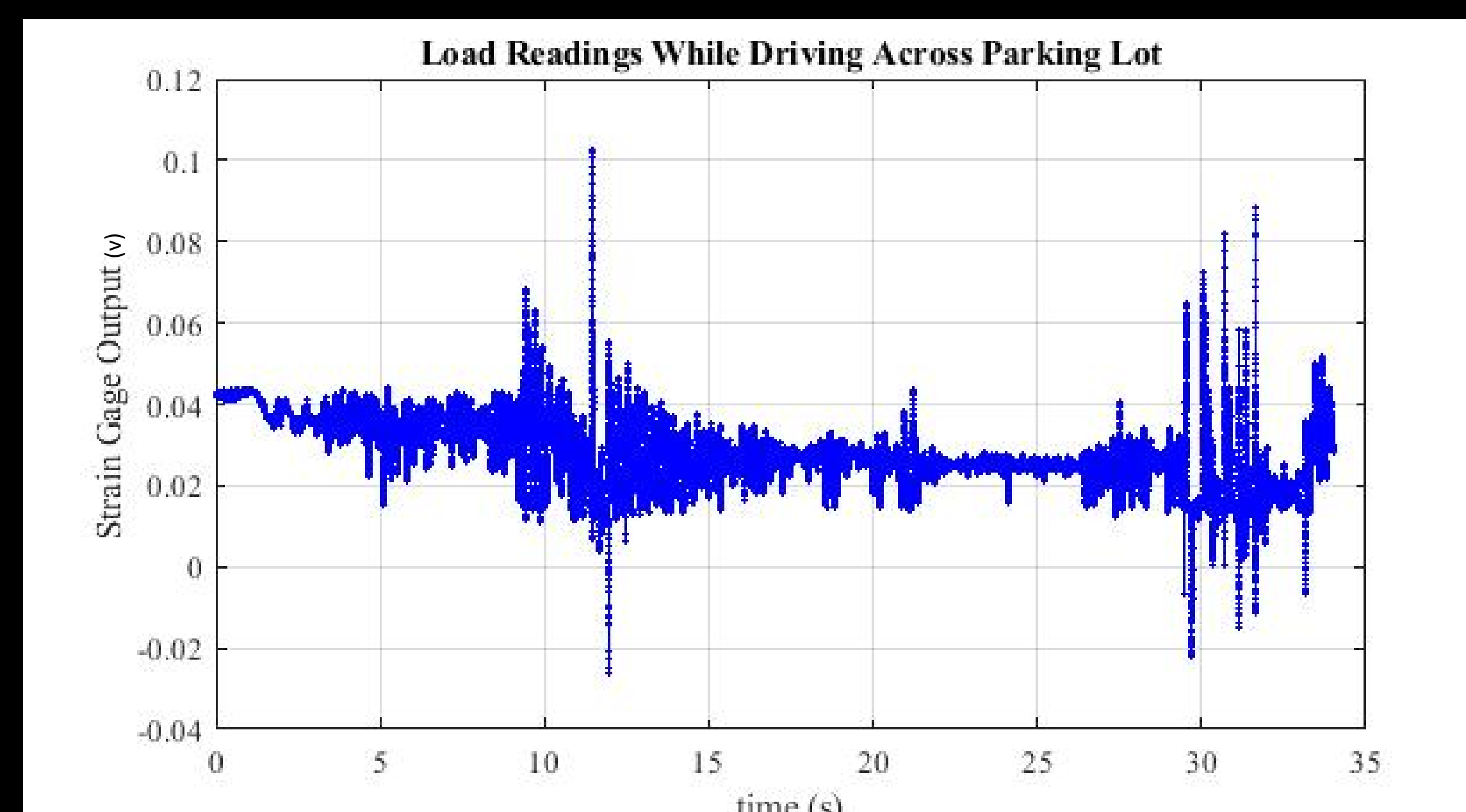
SHOP DEVELOPMENT



VALIDATION



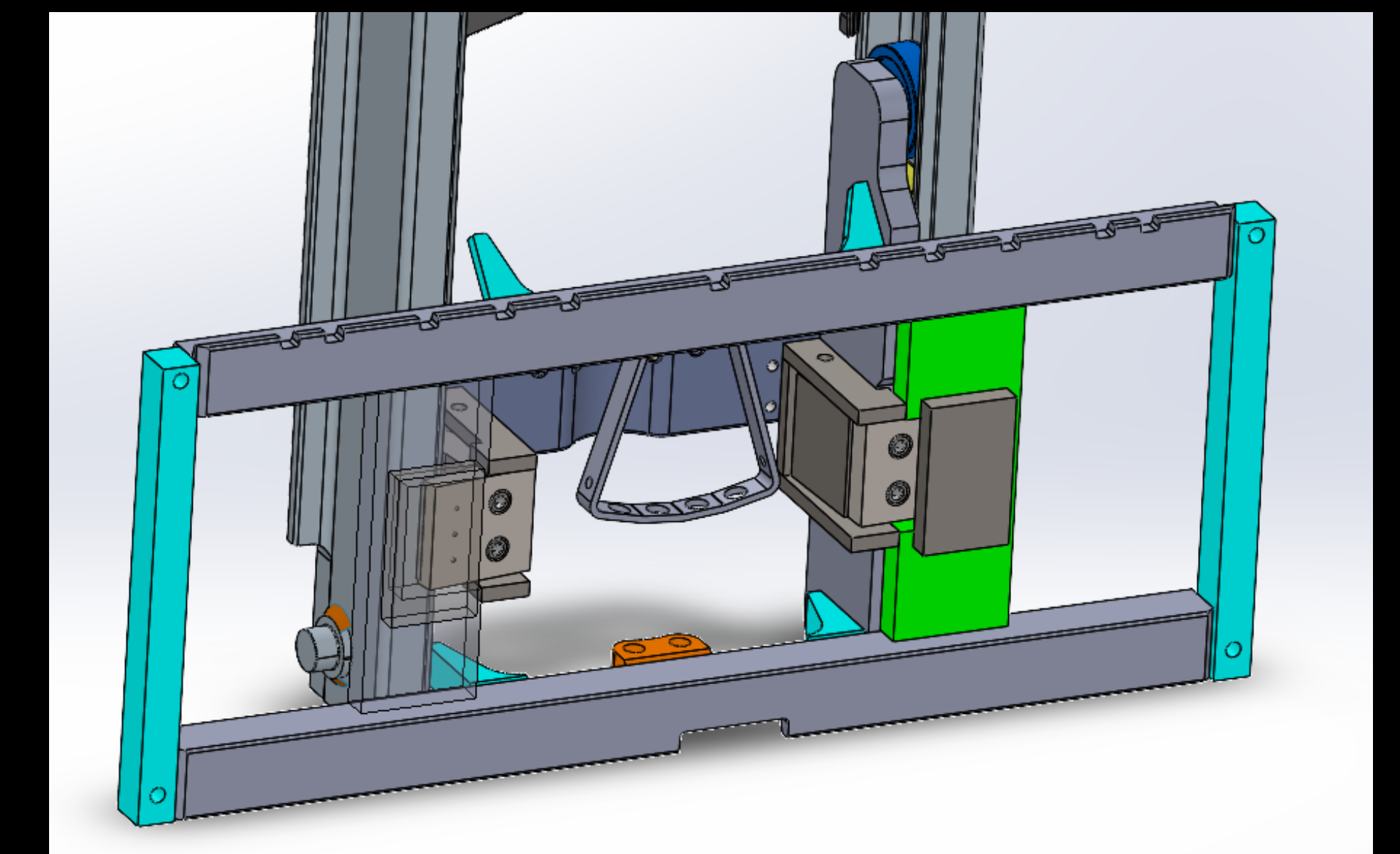
FEA of altered carriage for design. Verified strength of carriage after modifications.



Data was collected using a strain gauge on a different forklift model to determine relative loads on the brake.

BY THE NUMBERS

- Hours spent in the shop: 200+
- Number of parts machined: 18
- Number of pages of drawings: 21
- Hours spent doing FEA: 23
- CAD Package Revisions: 28



SUMMARY, CONCLUSIONS, RECOMMENDATIONS

- Better material selection
- Increase factor of safety
- Reevaluate with strain gauge data
- Scale design for different models and capacities
- Integrate Design into carriage with less modification

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