CASE STUDY | Automotive: warranty claims drive change

INDUSTRY
Automotive

CHALLENGE
A blue chip company producing specialist commercial vehicles was experiencing expensive warranty recall claims due to suspension breakages, caused in part by the poor state of today's roads.

COMPONENT
A fabricated bracket, formed from sheet steel with a welded web. Combined with another part, the bump stop, forms the damper bracket assembly for the vehicle's suspension system.

SOLUTION. OPTION 1
The part has an inherent weak spot in the design which Dean Group identified using stress analysis software. Thicker section steel could be used, but this did not address the design flaw, and the chosen production method did not allow for a simple solution.

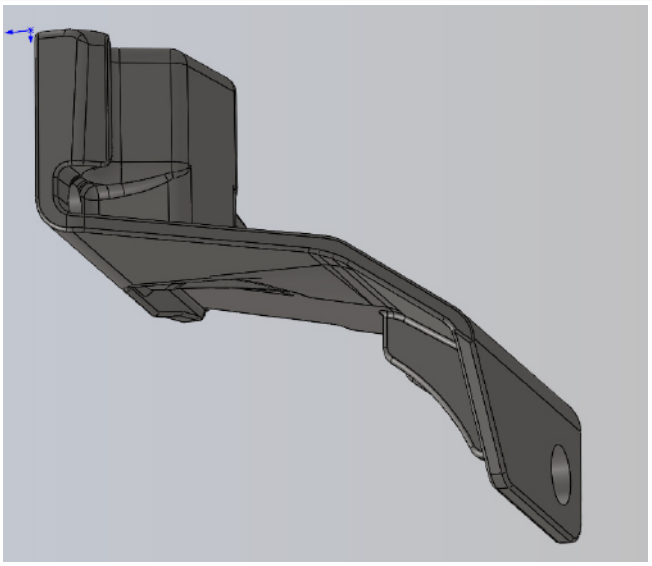
SOLUTION. OPTION 2
Develop the part as a casting. This allows for much greater design flexibility, the problem area could be identified and addressed in isolation without adding unnecessary additional weight and cost to the part.

PROCESS CHOSEN
A review of the function supported the use of commercial grade investment casting. Whilst this process does not carry the same dimensional accuracy and high end surface finish that can be achieved with premium grade investment casting, the process was fit for purpose and achieved the tight commercial constraints.

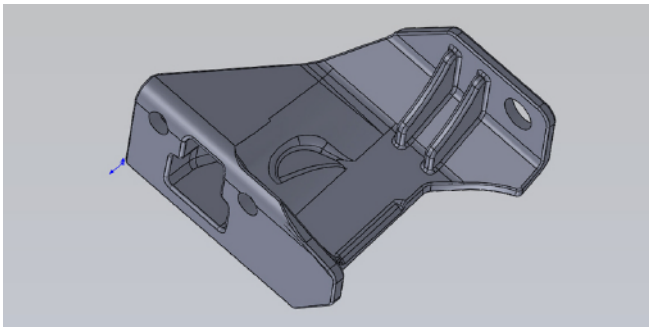
ADDED VALUE
As part of Dean Group design review, it was suggested that the "bump stop" could be incorporated in the design.

BENEFITS TO CUSTOMER

- Warranty issue resolved, parts were retro fit and the new design casting added to the new build
- Overall cost reductions
- Improved strength
- Reduced weight
- Reduced inventory, two parts become one



New design resolved the issue and added extra benefits



OUTCOME

The design was verified using stress simulations and the cast integrity confirmed by our bespoke casting simulation software and parts produced successfully.

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