

## 160 TONNE COAL HAULER



The complete design and detailing of a 160 tonne coal haul trailer to be driven by a Caterpillar 776 truck. The entire trailer was modelled using Finite Element Analysis, with conservative loading assumptions which were verified by strain gauge testing. The minimum fatigue life required was 40,000 hours using BS 5400 as the basis for weld design. Considerable use of castings was made in order to eliminate complex welded joints.

The design uses an open I-beam hitch (patented by CMP Engineers), which provides high fatigue strength with minimum weight, as it is easy to perform high quality welds on this type of structure. High strength, low alloy steel is used for the main wear and impact surfaces, with the remaining steel being 350 MPa grade.



Material hang-up in the hopper has been minimised by use of curved corner fillet plates throughout the hopper so as to eliminate tight corners.

Considerable attention was paid to features which minimise and simplify maintenance, such as ensuring easy access to serviceable parts, and sitting as many of the serviceable items on the prime mover instead of the trailer.



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