

Product Design - Truck Mounted Brake Assembly (TMB)

A premier railroad supplier contracted with SA to develop a truck mounted brake (TMB) design for an international customer. Due to the proprietary nature of the product, no specifics will be discussed herein. However, SA demonstrated its ability to develop a truck mounted brake assembly, via engineering mechanics, and its knowledge of railroad trucks and mechanical brake systems.

The TMB designed and delivered for prototyping was developed for use on a very difficult truck design. The truck had extreme movement, tight clearances and thusly the brake assembly had to comply. This included extreme longitudinal and lateral movement of the axles as well as excessive vertical movement of the bolster and or frame due to vertical loading resulting from various lading conditions. Also, because of the severe handling conditions required by the international customer, SA had to design the appropriate shoe forces for a wide range of stopping conditions.

The work included design of all components of the brake system, structurally, pneumatically and mechanically. Brake cylinder dimensions/volumes were designed carefully to function at all conditions. Detailed calculations were made using programs and spreadsheets developed in-house. The 3D geometry and design drawings were created using Pro/E.

With this project, SA demonstrated its ability to develop a complete truck mounted brake design. Also demonstrated are SA's capabilities for product design and development.