

## CASE STUDY

# SPACE LAUNCH SYSTEM (SLS) TRANSPORT TRAILER



## BACKGROUND INFORMATION

Keel was tasked with developing a specialized heavy load trailer for a customer in the space industry, designed to transport sections of a Space Launch System (SLS) Launch Vehicle. The trailer system needed to accommodate transportation of the SLS engine sections from the assembly facility to the space flight center for final testing. This custom-built transporter features dual front and back steering systems and embedded hydraulic and pneumatic controls to ensure reliable handling.

The project required delivery in just 22 weeks and posed numerous challenges. However, Keel successfully completed the transport trailer and the SLS Launch Vehicle was delivered on time. The customer recognized the team's efforts throughout the manufacturing, assembly, and integration process and presented Keel with a prestigious achievement award.

## BUSINESS CHALLENGES

1

**Technical Complexity:** Designing a trailer to safely transport critical sections of the customer's SLS Launch Vehicle required innovative engineering. In order to support the heavy load with precise control and meet complex transport requirements, Keel had to integrate hydraulic/pneumatic systems and advanced steering.

2

**Tight Project Deadline:** The project timeline was a significant challenge, with only 22 weeks between project kickoff and hardware delivery. Given the complexity of the specialized trailer, Keel had to work with this constrained time frame while managing multiple phases of the project, including design, fabrication, assembly and integration.

3

**Fabrication and Assembly Coordination:** Building the custom double-wide transport trailer required precise coordination across several business departments, including Keel's manufacturing, assembly and integration teams. Keel had to overcome fabrication issues as they arose, ensuring each component was built to exact specifications.

## APPROACH AND SOLUTION

Keel adopted a focused and determined approach to successfully deliver the custom heavy load trailer within the customer's 22-week time frame. The project began with an intensive design and engineering phase, where Keel worked to develop a double-wide trailer that incorporated dual front and back steering systems along with embedded hydraulics and pneumatic controls. These features were critical to ensuring the transporter could handle the SLS engine's large size and weight during transit.

Despite numerous technical and fabrication challenges, Keel's team worked long hours and stayed committed to resolving issues as they arose. Close collaboration between manufacturing, assembly and integration teams was key in overcoming difficulties. This approach enabled Keel to meet the customer's tight deadline and deliver a fully functional heavy load trailer, resulting in the prestigious achievement award.



## VALUE DELIVERED

Keel provides heavy fabrication and precision machined components critical to our customer's operations. By maintaining tight tolerances, meeting quality requirements, and providing reliable deliveries, we ensure the operation keeps moving and producing. That is why aerospace, defense, and heavy equipment companies rely on Keel to help them deliver the impressively strong, durable and reliable products. From machining to fabrication and assembly to delivery, **Keel's products are built to last.**

**Dependable Delivery:** For high-stakes projects like the SLS Transport Trailer, dependable delivery was key. With only 22 weeks from kickoff to hardware delivery, Keel overcame technical and fabrication challenges to provide a custom double-wide trailer capable of transporting critical aerospace components. Our extensive experience and dedication to resolving issues promptly ensured we met our customer's tight deadline.

**Custom Production:** Complex assemblies, such as the trailer's dual front/back steering systems and embedded hydraulic/pneumatic controls, required custom solutions. Keel's vertically integrated team and advanced manufacturing capabilities enabled us to seamlessly integrate these features, providing our customer with a transporter tailored to their exact needs.

**Exacting Precision:** The trailer's enormous size required precise fabrication and assembly to ensure its reliability. Keel brought aerospace-grade precision to the project, ensuring that every component met our customer's stringent performance requirements while handling the load of the SLS engine's section.



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