

# Alpine Engineering & Design, Inc.

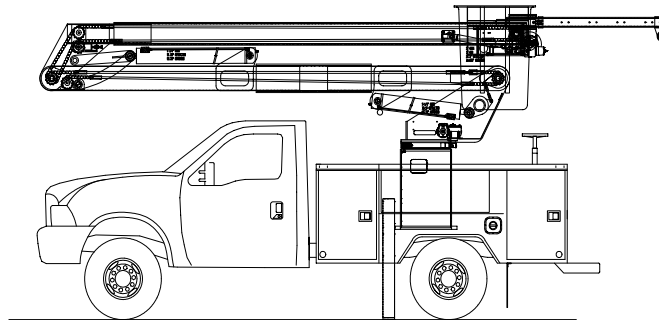
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## Fast Track Product Development

### Off to a Running Start

Product development can fall down the list of priorities as manufacturers deal with the day-to-day challenges of existing product lines. When the resources are just not available to take on that new product design, many companies look to the engineers at Alpine Engineering & Design for help.

A manufacturer of man lifts had a tight deadline for adding a material handling lift to their product line. They turned to Alpine Engineering & Design to



Rough overall CAD layout is the first step

help them with only five months to provide:

- **Complete Design**
- **Prototype**
- **Tested Product**
- **Drawing Package**

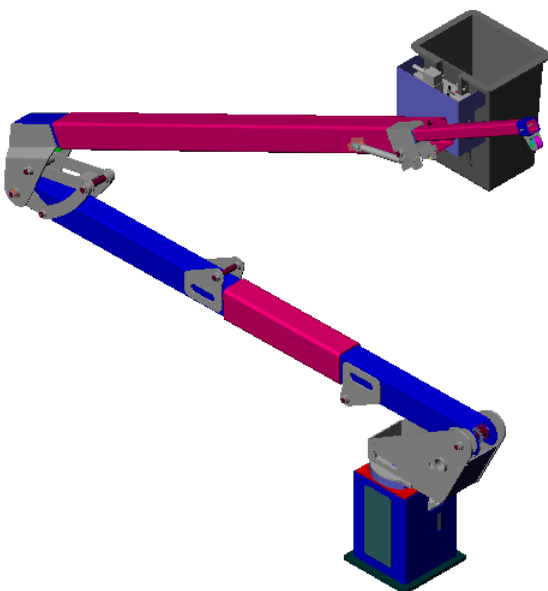
With a list of specifications, our engineers worked closely with the manufacturer to produce an overall layout. After a number of iterations the layout was ready for the next step in about 6 weeks.



### Paperless Prototyping

The designers at Alpine Engineering & Design build the prototypes themselves. We go from CAD file to prototype without the time and expense of detail and assembly drawings.

### Streamlined Prototypes



After the rough layout we generated a SolidWorks® assembly.

The solid model of the design served several purposes:

1. A check for assembly interferences
2. Established the solid geometry for the finite element analysis (FEA) of each assembly
3. Preparation for service manuals to be produced later

It was now time to pull out all of the stops on prototyping. With a coordinated effort we had parts ready to weld and assemble in just a few weeks.

### Cutting costs in product development:

- Our engineers and designers assemble the prototypes of their product designs. Design improvements and corrections are made during fabrication.
- Complete finite element analysis (FEA) of a product during the design virtually eliminates surprise failures or unforeseen weak points.
- With over 20 years of product experience, we have established an efficient and effective product development system.

“Engineers with hands-on experience in fabrication become better designers.”



Our engineers designed and built a test pad for the material handling man lift during the prototyping process.

The design process continued through the assembly of the prototype. The overall CAD assembly was continually updated with changes that would facilitate production assembly and simplify the design.

In a few weeks the weldments and subassemblies were complete. As a result of the careful design work, very few changes had to be made to the prototype.



## 15 Weeks from Concept to Prototype

Traditionally, it takes about three prototypes to get a product ready for production. The engineers at Alpine Engineering & Design rarely need even two. We can do this by involving the engineers in every phase of the product development to catch the problems early.

- **Welded Structure**
- **Hydraulics**
- **Power Transmission**



**Let Alpine Engineering & Design help turn your great idea into a great product. Our multi-industry design experience will benefit you.**

## Alpine Engineering & Design, Inc. Experts in Product Development

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The material handling man lift was tested to 2 times rated load with no failure or permanent deformation.