

AME4: Design Improvements to a Hand Truck for Improved Wear/Serviceability and Adjustability

Team Composition: ME/MET, MSE

Sponsor: Magline Inc.



Project Description: Magline Inc. started in 1947 with its first magnesium Magliner® hand truck which was a huge success in the route distribution business. Customers ask for 'Magliners' by name, and over the past 65 years the company has expanded its product lines to include convertible trucks, brake trucks, specialty application trucks, powered trucks, ramps, and pallets. Manufacturing is done in Magline's headquarters in Standish, MI. Magline is partnering with AME for the next two years. This year, the AME is challenged with improving two aspects of Magline's current line of two-wheeled hand trucks:

- 1.) Improving wear and/or serviceability of the truck's aluminum extruded nose plate. The scope of viable solutions is intentionally broad and can include changes to the nose plate material (currently an aluminum extrusion), addition of a serviceable wear strip or surface treatments.
- 2.) Developing a design solution for adjustable truck handles (height and angle adjustment). The team will focus on Magline's U-handles and double grip handle designs, brainstorming solutions for height as well as angle adjustment (double grips only). The concept phase will be similar to above, using a set of design criteria to down select the top ideas for prototyping. The hand truck has a 500 lb capacity rating that must be maintained.

