Project Title: Load Cell
Team Members: Justin Alcorn, Matt Oestreich, Austin O'Connor
Objective: Add strain gauges to load cell, and test

Model and Design Description: A new FEA is needed to compare to the test results that were obtained, because the previous FEA is modeled for a different material.

Analysis of Design (Methods, Findings): According to the test that were done, and the calculations that were done the load cell is capable of being used to press out skateboards. However it is desired to add 4 more strain gauges to the opposite sides to produce better, more accurate results from testing.

Construction Steps: Load cell was already constructed, a slot was cut on the press and strain gauges were added. For the slot; a plasma torch was used to cut off the metal and an angle grinder was used to clean the edges. To square up all the edges the metal was then taken to the mill and a ½ in. end-mill was used. For the strain gauges the load cell was cleaned with acetone. Then M-Bond glue was applied to the gauges, the gauges were applied to two sides of the load cell, clamped and then allowed to dry for 24 hours. After drying 8 wires (4 for each side) were cut to length, stripped and soldered to the connection points on the strain gauges. Once the soldering was finished M-Coat was applied and allowed to dry for 24 hours before testing.

Construction Issues: Dry time for the M-Bond and M-Coat slowed testing down and required more time to get data and find issues. Possible bad bonding with the M-Bond corrupts the data.

Final Product Testing Results: Load cell can with stand up to the required load and be used to press skateboards.

Recommendations For Next Time: Take more time, and caution when using M-Bond to make sure a good bond is between the surface of the material and strain gauge.
Hours Worked On Project: 15-20

Final Cost: $0, already had all the materials.

Deviation From Original Budget: $0