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Large Machinery Weld Fixturing

This project represents the first phase of several projects in which DTE worked with our customer to take multiple sizes of different parts of construction equipment and give them the ability to weld the parts together on a single fixture. This project paved the way for additional orders from our customer for new fixtures or modifications to current fixtures when models change or new models have been added to the program. Our constant communication through our project team members and quality that surpassed our customers' expectation has benefited DTE by giving us the opportunity to expand the work we do for this customer into other areas of the manual weld, machining, and robotic weld departments.



System Overview

- The overall program consists of twelve different weld fixtures.
- Each fixture can accommodate an average of three or four different models.
- Part tolerances on some fixtures range as low as .020".
- Overall fixture sizes range from approximately 3 feet long to approximately 20 feet long.
- Efficient storage of change out parts was a requirement in order to maintain a space saving solution.

System Values & Benefits

- Combining multiple models on a single weld fixture reduces the overall required floor space.
- Precision locating eliminates the need for manual measurement of parts throughout the weld process.
- Coordinated change out parts allow for quick change between models.

System Highlights

- Solutions to control deformation caused by the weld process are implemented on each fixture.
- Individually controlled hydraulic valves assist with movement on larger weld fixtures or with parts that cannot be moved manually.
- Coordinated change out parts with locators which were utilized to ensure correct positioning for each different model.
- Movement of different parts on a fixture to accommodate a different size model is achieved with slides that lock into place with plunger style locators.
- Custom designed racks provide efficient storage of change out parts in close proximity to each fixture.