Genesis Case Study #:   10402 - Fork Lift project
Application: Welding
Market Segment: Industrial
Product: Fork Lifts
Cycletime: 5 minutes per side

Project Summary

Genesis developed a robotic system with tooling and programming for a fork lift project. The system and tooling had to be capable of holding and welding 72 different part numbers within this particular model. The system would be setup as three different operations. OP10 Battery wrap to side plates sub, OP20 Bulkhead to battery box sub, OP30 Battery box to fork marriage.

Project Challenge

- System and tooling capable of holding and welding 72 different part numbers
- Robots had to be setup to use common programs
- Parts could only be loaded from one side of the tooling
- Robot weld time had to be balanced to optimize cycle time
- Tooling had to be designed for easy change over between different part numbers

Genesis Solution

- Genesis solution was a GenS 3XC which contains a servo driven exchange axis. The servo driven exchange axis was required due to the overall size and weight of the welding fixtures.
- The system design incorporated a center mount robot and a robot mounted on the floor. This design maximizes the utilization of the robot work envelope to cover the full range of the part.
- Station A tooling would be designed and broken up into two sub-assembly operations OP10 and OP20.
- Station B tooling would be designed for OP30 operation and as a final spin out to pick up any welds not accessible during the first two operations.
- Tooling consisted of both manual and pneumatic clamps with sensors to detect clamp open/close.