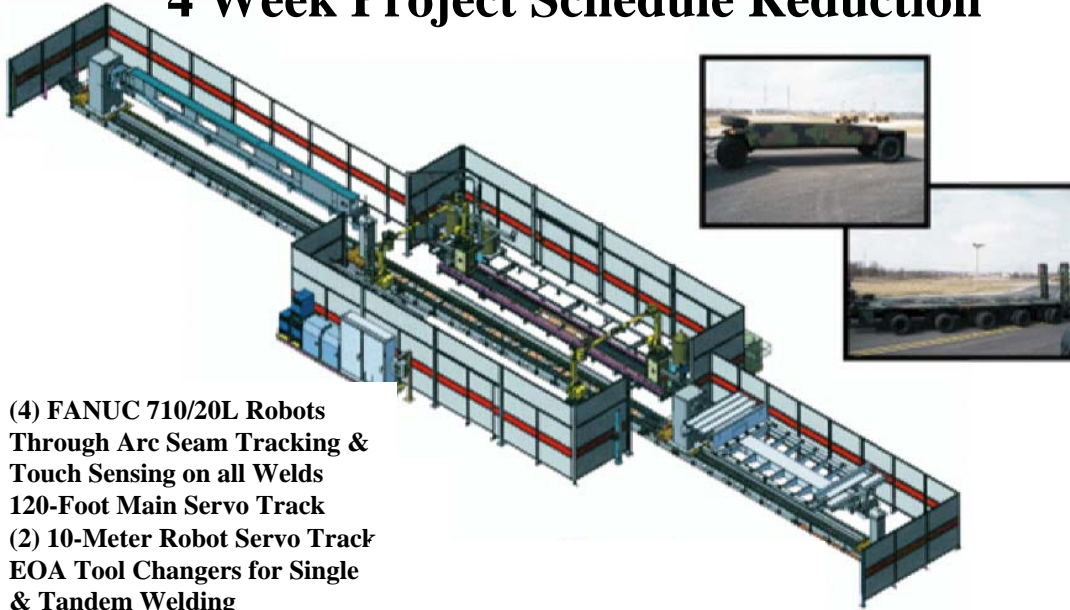


Genesis Case Study #: AECS-J5945  
Application: Offline Programming  
Market Segment: Industrial  
Product: Military Trailers  
Cycletime: Stage 1 HEMAT – 1 hr 15 min, Stage 2 HEMAT – 35 min, M1000 – 1 hr

## 4 Week Project Schedule Reduction



- (4) FANUC 710/20L Robots
- Through Arc Seam Tracking & Touch Sensing on all Welds
- 120-Foot Main Servo Track
- (2) 10-Meter Robot Servo Track
- EOA Tool Changers for Single & Tandem Welding

### Summary

Genesis Systems Group's Advanced Engineering Department was asked to provide a solution to reduce the project schedule so that delivery time could be shortened to meet the customer's launch schedule. This project required the programming of over 500 welds with an assortment of joint configurations and positions. To fully reach the large parts and to increase throughput, (4) FANUC M 710/20L robots with independent servo tracks on (2) Dual-Arm controllers were utilized. The robots were equipped with multiple weld gear and EOA tool changers to switch between single and tandem torches to handle the different weld joints and torch access areas on these parts.

The Advance Engineering Department's solution was to use FANUC's WeldPRO software for offline programming of these parts. By using this package, Genesis was able to reduce the original project schedule by 4 weeks and was able to meet the customers launch schedule.

### Project Challenges

- Reduce original project schedule time line
- Offline program over 500 pre-tacked welds with multiple weld joint configurations
- Maximize machine throughput by optimizing robot utilization by balancing 4 robot arms
- Maintain accuracy on large Robotic workcell containing 200ft of modular servo track from the virtual world to real world with multiple relocations

### Genesis Solution

- Utilize FANUC's offline programming software, WeldPRO
- Offline programming gave the ability to pre-program the robots during the machine build process and program additional parts while the robots are running production
- Utilized CAD-to-Path tools to quickly program and set pre-determined weld process information
- Incorporate Touch Sense and Through Arc Seam Tracking (TAST) commands into the part program to account for non-repeating, pre-tacked part weld joint locations
- Robot balance and utilization enhanced by WeldPRO's programming tools to maximize machine throughput.
- Simulation allowed customer to verify process and weld sequence prior to completion of the machine build
- Increased accuracy achieved using WeldPRO's calibration features.