

# CASE STUDY

Retrofit of Blank Stacker  
Achieved During One Week  
Yearly Downtime



A major blank stacker upgrade needed to be complete in only 3 months time. MartinCSI's Mitsubishi expertise, in-house preparation, and team approach lead to a retrofit of 41 servos, 32 VFDs, and 3 PLCs, being installed in less than one week with production resuming on time.

## The Challenge

A tier one auto part supplier had a very large, very old press and blank stacker with many drives, motors, and PLCs that were obsolete and no longer available for purchase. They went to the original equipment manufacturer to request a quote for upgrade, but the manufacturer refused to quote the project.

The blank stacker was massive, with 41 Mitsubishi MRJS2 servos, 32 Mitsubishi E500 Series VFDs, and 3 Mitsubishi A1S PLCs. They couldn't keep relying on finding resale parts online or trying to repair used equipment. Since the original equipment manufacturer was not an option, a systems integrator would need to get involved in the retrofit. However, none of the integrators they had worked with previously had the level of Mitsubishi experience the project required.

The blank stacker is where parts coming off of a steel press are aligned, stacked, and prepared for transport. Servos move to a designated spot based on what part is being produced. For this press, 2 blanks can be loaded at once so there is a stacker on 2 sides. As the parts drop, they are aligned, stacked, and once a certain height is achieved, they are transferred to a conveyor.

## The Solution

The tier supplier used Mitsubishi Electric Systems Integrator Program search tool to locate a qualified integrator in their area. They found us, a Diamond Elite Systems Integrator in the Mitsubishi program. We supplied a quote and were awarded the project.

The major challenges with the upgrade project were associated with the age of the original equipment, lack of documentation and the large quantity of servos and motors that needed to be replaced. The Mitsubishi J2 servos were being replaced with the J4 servos, however, they were not a direct replacement. The mounting plates, mechanical couplings, and some factory gear boxes did not match. The system had no mechanical drawings and the electrical documentation was either missing or outdated.

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## Challenge

- 41 obsolete servos
- 32 obsolete VFDs
- No mechanical drawings
- Incomplete/incorrect electrical drawings

## Solution

- Migration path developed
- Mechanical retrofit designed & fabricated
- Development of new drawings
- Successful program conversion
- Phased team install

## Results

- Installation complete & production resumed on time
- 20+ years added to equipment life

The project needed to be installed, tested, and ready for production within the plant's regularly scheduled one-week shutdown. The project would also be installed in two phases, the front-side then the right-side stacker, to ensure the system would still be operational should any major issues arise. The press is integral to the plant's operation, and it was very important to be back up and running before the end of shutdown. In the plant history, there was only one time that a piece of equipment was not ready to run on schedule. The responsible party on that project was not asked to quote any further work.

## The Results

The success of this project would not have been possible without the willingness to operate as a team and the close relationships we have with our customers, vendors, distributors, and manufacturers. Since the J4 servos were not a direct match to the J2s we had to design custom mounting plates and the mechanical couplings had to be retrofitted. Our mechanical and electrical engineering teams came together to find a solution, and everyone joined in on the assembly so the servos would be ready for install. We had 41 servos and new cables to install in a short time frame and a tight space. The field engineers and the customer had a great working relationship.

MartinCSI has gone on to do several upgrade projects within different departments at the plant. We have created a trusting and mutually beneficial partnership which gives those we work with confidence in referring us to colleagues. This is something we always strive to do and guides us on our path to become the most referred systems integrator.