



# Machine Refurbishment

## Case Study

### The Quest for prolonged life

#### Background

Giving Quest Consumer Products' fifteen year old pallet wrapping machine a new lease of life was literally all in a day's work for Automation Software Engineering (ASE).

ASE drew upon their software engineering skills to replace the Timperley Rotarap's original controller with Telemecanique TSX 07 nano-PLCs (Programmable Logic Controllers) and write new bespoke software in fully structured Ladder language.

#### Challenge

Ashley Peek, Engineering Supervisor for Quest Consumer Products of Highams Park in Chingford, said: "The wrapping machine failed to operate due to the coincidental double failure of the re-chargeable batteries and mains power to the wrapper - thus effectively wiping the machine's program.

"We had two options; either repair the machine, or replace it with a seven year old second-hand wrapper, which would have set us back £1600. We took the more cost effective solution of allowing ASE to bring the old machine back to life."

#### Solution

As the previous program for the machine was lost forever and with no back-up programming available, ASE, who specialise in integrating control and automation systems programmed the new software from drawings showing the machine's input and output (I/O) codes and by talking to Quest's personnel about the wrapping procedure. The new software was programmed on-site in a matter of hours while the two PLC's were being wired into the wrapping arm by an electrician. The Telemecanique PLCs - one a base unit the other an extension - were selected on the grounds that they can be configured for the simplest of applications, from 10-48 I/Os, or for high speed and sophisticated uses. They feature short processing time and fast up/down counting functions - ideally suited to wrapping and packaging operations.

The machine was fully operational the same day and soon able to carry on shrink wrapping rolled cling film to standard size Euro pallets loaded with plastic injection moulded components destined for companies like Spear and Jackson and Mothercare.

The pallet loads of products are usually hand wrapped in cling film for warehouse storage before they are loaded by forklift onto the machine for shrink wrapping. A control panel allows for either manual or automatic operation. The wrapping arm is able to spiral, or cross spiral cling film around boxes/containers up to a height of 8ft and to a maximum of 77 rotations. As a safety measure a photo electric cell stops the wrapper from going too far above or below the pallet.

Although the machine works at a set speed, the speed of wrapping can be adjusted between settings of between 0-12. A slow speed towards the end of the cycle takes up any tension in the procedure and means the pallet is ready for loading directly onto a delivery vehicle.

ASE comment: "Quest now have a modern control panel for their wrapping machine and very effective software which will last them many more years."

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#### Benefits

- Extended life of machine
- Less downtime
- ROI above expectation

#### Project Statistics

- 15 Year old pallet wrapping machine
- Major systems failure
- Control program lost
- Urgency of work

#### Systems Expertise

- PLC application and programming
- Process translation
- Control panel upgrade
- Client liaison and managing of expectation