



John A.L. Mills and Associates Pty. Ltd Gives New Meaning to High-Speed Manufacturing



→ THE CLIENT

For more than 30 years John A.L. Mills and Associates Pty. Ltd, a Melbourne metal engineering company, has been helping both Australian and overseas clients develop new products and manufacturing processes, which create a competitive edge. The Enerpac products used in this case study have been proven throughout Australia and internationally for more than 50 years. Demanding projects worldwide have been accomplished faster and more safely with help from Enerpac's integrated hydraulic systems and equipment.

→ THE CHALLENGE

Pacific National maintenance and field services wanted to address the ongoing program of pad replacement due to the constant contact from side bearers fitted to many of Pacific National's railway wagons. A custom-built tool needed to be developed to do the job swiftly and safely.

→ DESIRED OUTCOME

Brett Appleby and Mike Considine of Pacific National maintenance and field services met with Mr. John Mills and Enerpac Territory Manager Arnold Mazur at the end of March to show them the workings involved and discuss the range of potential solutions.

→ THE SOLUTION

Using Autodesk® Inventor™ to model and documenting their proposal, Mr. Mills and his son Laurence Mills presented a concept model within a working day! The concept (pictured) involved an Enerpac RC59 long stroke (232mm) hydraulic cylinder coupled with an Enerpac V66 manually operated check valve to permit prolonged load holding and allow controlled release of load. This equipment was contained within a steel bed and light but rugged frame custom-fabricated to offer the stability, safety, precision, and repeatability required by Pacific National.

→ ACTUAL RESULTS

"We presented our concept on the Monday before Easter. We were given approval to proceed the next day, and had the product made and delivered within seven working days! The clear brief from Pacific National, the right tools from Enerpac, and AD Automation enabled us to move very swiftly through design, modeling and documentation on Autodesk Inventor and quickly proceed to engineering and fabrication," said Mr. Mills.

An Enerpac PATG1 120N Turbo II air-hydraulic pump was chosen to power the apparatus because of its compactness, reliability, and ease of operation. The pump – which can be actuated by hand or foot - is designed for low air consumption and operating costs while reducing noise levels to 75dBA to minimize operator fatigue. The pump's operating air pressure enables it to start at extremely low pressure. "Although the 1.5 ton force required was relatively low, the advantage of the high force tool selected was its fine control of speed in both advancing and retracting under load," said Mr. Mills. "Also the cylinder gave us the ability to hold the load without losing position."

John A.L. Mills and Associates pooled its metal design and fabrication experience, leading edge design software, and high-force (700 bar) hydraulic tools from Enerpac distributor AD Automation to produce the five-ton capacity compressor used to speedily remove and replace wear pads on Pacific National railway wagons. This project gives new meaning to the term high-speed manufacturing. The design, fabrication, and delivery of this precision spring compressor were complete within an incredible two weeks of its initial inquiry!