

CASE STUDY**Online Auto Reseller Saves \$25 Million in Reconditioning Costs**

Lower reconditioning costs and liberated capacity supported a 6X increase in vehicles sold.

Client

A growing online retailer of low mileage, pre-owned vehicles. The private equity-backed company reconditions vehicles to a high standard, sells them online, and makes deliveries to customers anywhere in the United States.

Challenge

The company needed to create reconditioning capacity ahead of an expected increase in marketing spend and exponential growth goals. Actual throughput (vehicles per day) was 40% less than perceived because of high quality reject rates.

Solution

A comprehensive lean manufacturing transformation, starting with standard processes to improve quality, work cell design, overall flow improvements, more visual factory design and daily management methods to sustain forward progress.

Results

- The company was able to handle a 6X increase in vehicle sales growth over a two year period as a result of extra capacity and reduced reconditioning costs
- \$25 million in annual reconditioning cost savings achieved
- Reconditioning lead-time reduced from 21 to 5 days
- First time quality improved from 50% to 87%

Supported by investors with deep pockets, the competition among online-only vehicle resellers is intense. Their goal is to transform the used car shopping experience by offering high quality, refurbished pre-owned vehicles, simplified transactions and exceptional customer service.

Our client acquires vehicles, refurbishes them and uploads detailed profiles to its website. The private equity-backed company's original operating model was to clean, take photographs and post vehicles for sale before reconditioning was complete. This approach sped up the sales cycle but it sometimes forced buyers to wait weeks until the vehicles were actually ready for delivery.

When we started working with them, the reconditioning process was taking 21 days on average, and first pass yields (zero defects at the end of the reconditioning process) were around 40%. After helping to stabilise existing operations, TBM worked with the company to "flip" its sales model. It now reconditions the vehicles first, then photographs and offers them for sale.

To make this switch without a massive increase in inventory required much shorter reconditioning times. Those times were slashed to just 5 days. Coupled with other changes, TBM helped the company lower overall inventory levels, maintain capital requirements, improve margins and cut order-to-delivery times in half.

Objectives

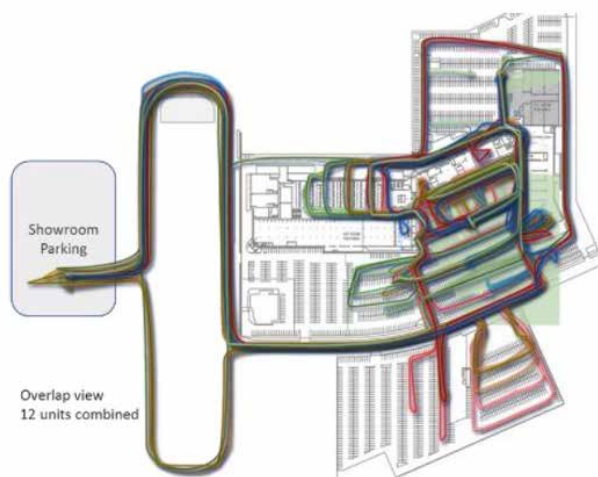
- Improve profitability
- Improve quality
- Increase vehicle reconditioning capacity
- Double daily output
- Reduce reconditioning labor costs by 25%
- Deliver more than 97% of orders within two weeks

A Faster Path to the Finish Line

The company's 500,000-sq. ft. reconditioning facility is divided into departments based on types of repairs. Many of the departments are managed by outside vendors. These areas include mechanical, exterior paint, windshield, wheels, bumpers, interior and touchup. Our initial analysis (Figure 1) of a cross-section of makes and models found that the average travel distance for each vehicle from various storage lots to the different repair areas was 2.3 miles.

FIGURE 1

Tracking Vehicle Movement During Reconditioning



Vehicles were moved more than two miles through multiple staging areas during the reconditioning process prior to creating a new streamlined process.

Before starting to streamline this workflow, we zeroed in on quality. When TBM began working with the company, final inspection was rejecting 55% of vehicles at the end of the reconditioning process. These vehicles then required an immense amount of rework to bring them to sellable condition.

Our first task was to standardise the initial inspection process and how the reconditioning work for each car was being specified and planned. After identifying the leading culprits for the low first-pass yield rates, we helped establish more rigorous quality standards and processes, and simultaneously pushed more quality responsibility back to each repair department.

Workflow changes in the paint area, which had been a major bottleneck, included workplace reorganisation, a new scheduling process and standard work. All of these improvements reduced the paint backlog by 80%.

To further maximise productivity, we helped implement several changes to reduce wasteful movement. We introduced porters who now locate and drive the cars to the appropriate work areas. Previously, the mechanics had wandered out to the lots and retrieved the cars themselves. A new kitting system delivers the right parts and supplies for a given make and model directly to the mechanics at their work stations.

All Eyes on the Road

To maintain forward progress TBM worked with the company to expand some existing programs and launch a number of new initiatives. Performance boards give employees and supervisors an instant view of how they're doing on any given day.

Sustainment efforts are being supported by problem-solving training for associates, supervisors, production managers and site leaders. The collaborative and team-based techniques are learned within the context of the real problems that they face every day, including a clear escalation and help-chain process.

A new Kaizen Promotion Office is working independently to execute continuous improvement projects and create a problem-solving culture. Built on the revamped reconditioning standards, the company's new production system emphasises agility and work layouts that enable just-in-time material flow, supermarkets and other buffers to manage work variation. New work cell designs have dramatically accelerated cycle times.

Gearing Up for the Future

To further support their growth plans, TBM worked with the company's production leaders and engineers to design a new facility.

The layout of the 700,000-sq. ft. new facility features additional lifts to boost capacity and improve ergonomics as well as additional work cells for staging work. The new design enables cleaning to be completed inside, and 95% of vehicles to stay within the building throughout the reconditioning process.

All told, the better work cell design, additional supermarket space, overall flow improvements and other changes could save an additional \$4-7 million per year when the operation hits its daily output targets.

We utilised the team-based, production preparation process (3P) to design a lean workflow from the beginning. The collaborative process harnesses the feedback from multiple functional groups - architects, design engineers, production engineers, marketing, maintenance, and other departments - to optimise the design of a product, production line or facility.

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