

ROSSINGTON AUTO SUPPLY LTD.

Trina Ruthes wrote this case solely to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2019, Ivey Business School Foundation

Version: 2019-11-21

Martha Bauer, quality control and business unit manager of the Small Automotive Parts Division at Rossington Auto Supply Ltd. (Rossington Auto) in Hamilton, Ontario, Canada, contemplated the challenges facing her company. Bauer had just returned from a troubling meeting with a customer who was threatening to put a freeze on future contract renewals because of a recent faulty shipment. Rossington Auto had been experiencing quality and capacity issues for some time, and Bauer knew she had to make changes to existing operations to preserve current customer relationships and win future contracts. She was considering the following options: purchasing a second used bending machine, purchasing a new bending machine, adding a third production shift, and changing product specification requirements to allow for more variance. It was the middle of December, one week before Rossington Auto's two-week holiday shutdown, and Bauer was determined to reach a swift resolution.¹

THE NORTH AMERICAN AUTOMOTIVE INDUSTRY²

The North American automotive supplier industry was highly competitive and consisted of several small- and large-scale manufacturing firms. In the past, the industry had been almost exclusively dominated by the "big three" companies—Ford, General Motors, and Chrysler LLC. More recently, foreign competitors, like Toyota, had entered the market and put pressure on North American assemblers to reexamine their production strategies. As a result, several began adopting the lean manufacturing model,³ coordinating production networks by using Tier One and Tier Two⁴ suppliers to outsource the manufacturing of most of the parts used in auto assembly. The increased responsibilities passed to first-tier suppliers granted them significant bargaining power. To survive in the industry, parts suppliers like Rossington Auto relied on their ability to win contracts from the major Tier One manufacturers.

¹ Rossington Auto employees were paid during the two-week holiday shutdown.

² MarketLine Industry Profile, "Automotive Manufacturing in North America," June 2018, accessed July 23, 2018, <http://advantage.marketline.com.proxy1.lib.uwo.ca/Product?ptype=Industries&pid=MLIP2718-0025>. David Bailey, Alex de Ruyter, Jonathan Michie, and Peter Tyler, "Global Restructuring and the Auto Industry," *Cambridge Journal of Regions, Economy and Society*, 3, no. 3 (2010): 311–318, accessed July 23, 2018, <https://academic.oup.com/cjres/article/3/3/311/497525>.

³ The lean manufacturing model, derived from the Toyota Production System (TPS), focused on maximizing benefits gained from suppliers to result in an efficient value chain, just-in-time production, and reduction of waste.

⁴ Tier One suppliers manufactured most products in-house and shipped the completed parts to automotive assembly plants. Tier Two suppliers supplied first-tier suppliers with additional parts required in the finished goods shipment sent to assembly plants.

The automotive industry had experienced fluctuating growth over the past few years, and despite a slight decline in 2017, growth was expected to rebound and continue into the near future. Total revenues in North America were US\$319 billion in 2017 and were expected to reach US\$367.7 billion by 2022. Automobile production volume had increased between 2013 and 2017, reaching 18.5 million vehicles in 2017, and was expected to continue to grow to a volume of 20.7 million by 2022.

ROSSINGTON AUTO SUPPLY LTD. (ROSSINGTON AUTO)

Company History

Rossington Auto was founded in the mid-1980s by Rod Rossington in Hamilton, Ontario. Rossington had worked in steel manufacturing for several years and chose Hamilton because of its proximity to main transportation routes. The city had access to other major cities within Ontario and the United States, allowing the company to easily source steel from suppliers and swiftly ship final products to customers. Hamilton also had prominent manufacturing and steel industries, with over 44,000 people working in the manufacturing sector in 2016.⁵ Rossington Auto produced several different steel tubing components that were used in the assembly of automotive parts. Until recently, the company had been family owned and operated, and maintained a reputation for high quality and competitive prices. Since being sold to an external party, Rossington Auto now faced operational issues that threatened its reputation. The company currently had over CA\$50 million⁶ in annual revenue, employed around 200 unionized employees, and had its QS9000⁷ certification.

Customers

Rossington Auto produced several different steel tubing components that were used in the assembly of numerous automotive units. These parts were manufactured in-house and shipped to Tier One classified original equipment manufacturers (OEMs) who produced automobile components and parts for resale to major automobile assemblers across North America. The company currently had contracts to supply steel tubes to two major Tier One manufacturers and was pursuing an expansion strategy to win a third contract. Since the tubing components were standardized, they needed to adhere to stringent specifications, making the shipment of defective tubes unacceptable. Tier One OEMs held significant bargaining power and maintained high expectations of their suppliers. Since most of Rossington Auto's competitors were capable of providing the exact same products, customer loyalty was virtually nonexistent. Tier One OEMs remained competitive within their industry by sourcing parts at a low cost and maintaining low levels of inventory. As a result, steel tubing manufacturers faced pressures to keep prices low and offer just-in-time delivery to win contracts.⁸ If a supplier failed to comply with these expectations, the business would likely not be a candidate for a contract renewal.

Martha Bauer

Management had recently hired Martha Bauer as the quality control and business unit manager of Rossington Auto's Small Automotive Parts Division. Her job was to evaluate and improve upon the quality issues plaguing the business, ensure the maintenance of existing contracts, and establish new ones. Bauer

⁵ "Employment By Sector," Hamilton, last updated February 27, 2019, accessed July 23, 2018, www.hamilton.ca/city-initiatives/citizen-dashboard/employment-by-sector.

⁶ All currency amounts are in CA\$, unless specified otherwise.

⁷ QS9000 certification was a set of quality requirements within the automotive industry created primarily by Ford, General Motors, and Chrysler to streamline quality standards within the industry.

⁸ An average contract typically lasted between three to five years.

had earned a bachelor of engineering degree in Mechanical Engineering at the University of Waterloo and had later obtained a master of business administration from the Ivey Business School at Western University. She had worked as a quality control manager for most of her career and earned a prominent reputation among industry players as a hardworking, no-nonsense businesswoman with strong interpersonal skills. In her new role, Bauer was responsible for overseeing the manufacture of steel tubing to ensure production ran with optimal efficiency and high-quality output. She also managed Rossington Auto's relationships with its major customers.

OPERATIONS

The Small Automotive Parts Division focused exclusively on the manufacture of the steel tubing used to produce heater cores for automobiles. A heater core, similar to a radiator, was used to heat the interior of a vehicle by passing hot coolant from the vehicle's engine through a winding tube and emitting it into the automobile. All vehicles with a heating system had a heater core, which was usually located behind the dashboard (see Exhibit 1). Rossington Auto held contracts with two Tier One manufacturers who purchased 20,000 steel tubes per week for a price of \$1.57 per tube.

Tubing Production

The plant operated two eight-hour shifts each day, five days per week. One operator, who was paid \$22 per hour, was used to oversee the bulk of the operation. First, pre-cut steel tubing, purchased from a supplier in the United States for \$1.32 per piece,⁹ was manually loaded one at a time into a pressing machine that rounded each end of the tube at a rate of eight tubes every 60 seconds. Next, the operator unloaded the rounded tubes and fed them into a custom-designed bending machine that bent the tubing into a specified zigzag shape that would enable it to fit into the heater core. The output of the bending machine was 14 seconds per tube. The bent tubing was then washed in batches of 30 tubes per minute to remove any oil or grime that would contaminate the tube. Finally, the finished tubes were packaged into boxes containing 50 steel tubes, at a rate of five minutes per box. One worker, paid \$15 per hour, was required to manually package the steel tubes. Rossington Auto used voluntary overtime to increase output and fill any orders that fell short of demand. Rossington Auto required all production workers from the line to work overtime to ensure all the units were produced and packaged during the shift and to avoid stockpiling at work stations. Employees were paid time and a half for any overtime hours worked.¹⁰

Production Issues

Bending Machine Issues

The current bending machine was several years old and required one hour of downtime¹¹ for preventative maintenance per shift to ensure its continued functionality.¹² Additionally, the machine would often slightly squeeze the rounded ends of the tube as it bent the steel tubing, resulting in steel tubes that varied slightly from the specifications stipulated in the contracts. Although Bauer knew this discrepancy had no negative impact on the safety and effectiveness of the completed heater cores, she worried this could result in the loss of future contracts if Rossington Auto's customers were to discover it.

⁹ One pre-cut piece of steel was used to produce one steel tube.

¹⁰ To pay workers, Rossington Auto rounds overtime hours worked up to the nearest half or full hour.

¹¹ Downtime costs the company \$37 per hour. Assume that no downtime was required on overtime shifts.

¹² Workers continued to be paid during downtime.

Recent Shipment Issues

Rossington Auto had been shipping slightly off-specification (off-spec) tubes to customers without their explicit knowledge on a regular basis. In a recent incident, one customer discovered the specification discrepancy after performing a sporadic quality inspection on an 8,500-unit order. The customer was extremely unhappy with this discovery and requested an emergency meeting with Bauer to demand a resolution. In the meeting, the customer threatened to end the business relationship once the existing contract expired. After a long and heated conversation, Bauer managed to resolve the issue by convincing the customer that the off-spec tubes posed zero safety risk and would not hinder heater core manufacturing. She offered to reimburse 20 per cent of the amount of the total order price. Bauer knew that if these quality issues continued, this rebate would not be financially feasible for the company.

QUALITY CONTROL PROCESS IMPROVEMENTS

Bauer was frustrated with the quality issues plaguing the manufacturing of heater core tubing and had already devised a plan to incorporate quality inspections into the existing production process to immediately improve tube standardization. She knew swift and tangible changes were required to alleviate customer concerns and demonstrate Rossington Auto's commitment to customer satisfaction. Bauer planned to catch and correct errors by adding two additional steps to the production process. After the bending machine shaped the steel tubing, it would pass through a re-work station where the distorted ends would be re-shaped in seven seconds per tube. Next, the re-shaped tubes would pass through a 100 per cent gauge inspection section and be measured and compared to the stipulated specifications. Inspection would take two seconds per tube. An additional full-time operator would be hired to oversee this new part of the process. Bauer planned to implement these additional quality control steps regardless of whether any additional alternative was pursued.

ALTERNATIVES

Although Bauer planned to implement this quality improvement plan, between five and ten per cent of tubes would still be off-spec. She believed further changes needed to be made to improve quality and increase capacity to secure future clients. Bauer had recently met with a potential new client and was preparing to submit a bid for a new contract that would increase demand to 30,000 steel tubes per week. She was confident Rossington Auto could win the bid if it addressed its quality and capacity issues. To prepare for this, Bauer was considering the following options:

Purchase a Second Used Bending Machine

Bauer believed purchasing a second bending machine would address the capacity constraints. She had reached out to one of Rossington Auto's trusted equipment providers and found a custom-designed used bending machine that was ready for shipment. The supplier was located in Southwestern Ontario and had a strong reputation in the industry. The machine cost \$105,000 to purchase, ship, and install, and came with a one-year warranty. This second machine would require an additional operator and would be virtually identical to the first. Together, the two machines would double the output of the bending step. Bauer hoped this increased output would eliminate the need for overtime and take the pressure off Rossington Auto's workers. She did know, however, that several workers valued the option to earn some extra income. Despite being fairly easy and straightforward to implement, Bauer was concerned this option would create space constraints on the production floor. Accommodating the second machine would mean the packager would now have to be content with a slightly smaller workspace.

Purchase a New Bending Machine

Bauer had found a custom-designed, state-of-the-art new bending machine for \$180,000 that could bend tubes at a rate of 8 seconds per tube. The new bending machine would replace the old one and would still require one hour of downtime per shift for preventative maintenance to ensure its ongoing effectiveness. Bauer was intrigued at the prospect of incorporating this new technology into the production process, and wondered if it could help the company win future contracts. On the downside, the machine was sold by a relatively unknown American equipment supplier with no established reputation. Although it came with a three-year warranty, and claimed to produce less than one per cent off-spec tubes per run, Bauer was reticent to fully trust the provider. She also wondered if she would be able to secure approval for the purchase of the machine.

Add a Third Shift

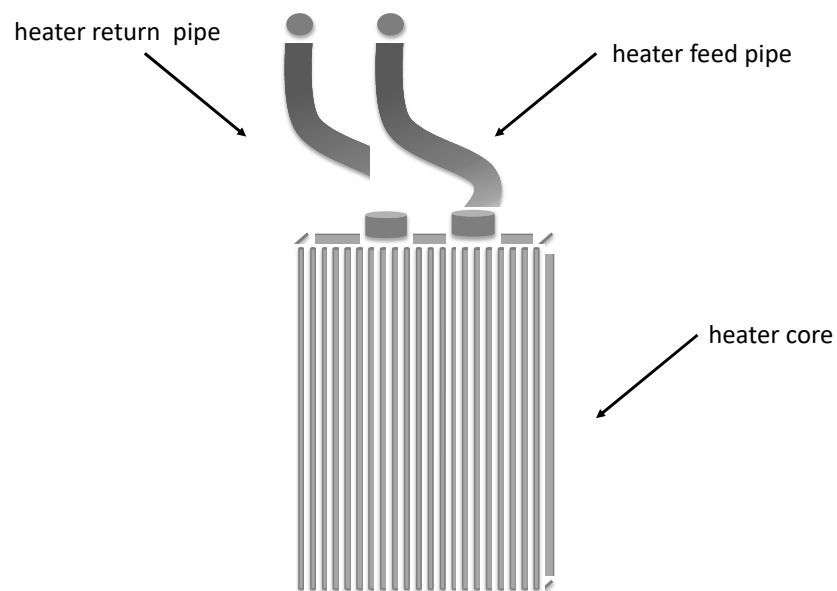
Bauer was contemplating adding a third shift to increase Rossington Auto's production output. To do this, the company would need to hire two new operators and one packager to work from midnight to 8:00 a.m., five days each week. Bauer worried Rossington Auto would have a difficult time recruiting and hiring suitable employees for this shift due to its unfavourable hours. To combat this, she believed a five per cent hourly wage premium would help incentivize workers. If pursued, this alternative would certainly increase manufacturing capacity; however, Bauer worried this would not be enough to meet the expected demand. In this case, Rossington Auto would need to implement overtime on the weekends. Bauer wondered if this, combined with the lack of upfront investment, would make this alternative a viable option.

Change Product Requirements to Increase Variance

In a meeting with the Small Automotive Parts Division production managers, one manager had suggested a quick-fix solution to address the order specification discrepancies in lieu of making changes to the existing manufacturing process. The idea was to approach each customer's team of engineers and convince them to allow an increased range of variance in the shape of the rounded steel tube ends. Bauer knew this would be a tough sell, and that asking for increased variation could send a signal to customers that Rossington Auto's products were of a lesser quality than those of its competitors. She worried Rossington Auto would be unable to maintain existing contracts and could face difficulty securing new ones in this highly competitive environment. To make this option viable, Rossington Auto would need to offer a lower selling price when bidding for contracts. Bauer was attracted to the lack of upfront investment required to implement this plan and appreciated the ingenuity of the manager who had proposed it.

DECISION

Bauer was determined to address the quality and capacity concerns facing Rossington Auto and was eager to make a decision. The company needed to begin preparing its bids to renew existing contracts and secure new ones. Although the company had already made the decision to add rework and inspection stations to the current production process, Bauer was not convinced this would be enough to set the business up for future success. Bauer feared Rossington Auto could lose at least one of its existing customers if no further changes were made. She needed to decide if it was best to purchase a second used bending machine, buy a new one, add a third manufacturing shift, or change product requirements allowing for more variance. Bauer needed to ensure she chose the alternative that would best ensure positive customer relationships and a sterling reputation in the future. She would have to make a decision and present her recommendations to Rossington executives in the coming week.

EXHIBIT 1: HEATER CORE

Source: Company files.