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Production Machining

A photograph of three men in a factory setting. They are standing in front of a large industrial machine, possibly a CNC lathe or mill. The man on the left is wearing a dark blue polo shirt and jeans, with his hands in his pockets. The man in the middle is wearing a black polo shirt and jeans, with his arms crossed. The man on the right is wearing a dark blue polo shirt and jeans, and is looking towards the other two men. The background shows various industrial equipment and a well-lit factory floor.

Turn-Mill and Much More

In Association With



MAKING HIRE TO RETIRE WORK

Edited by Chris Koepfer

It may take a village to raise a child, but it takes a dedicated and talented manufacturing team as well as enlightened management to steer a business on a successful course through tough times. This Canadian shop uses turn-mill machines and a “hire to retire” attitude to help it weather the storm.

Pazmac Enterprises (Langley, British Columbia) opened for business in 1972 and is a sole proprietorship developed around the vision of owner Steve Scarlett. Its objective is to excel in every element of delivering machined components to its client base. The company prides itself on offering cost effective manufacturing solutions for challenging, highly technical parts.

Its facility exemplifies this attitude as well. Tim Walls, Pazmac president/general manager, states that the company’s customer base has been limited to a small number of large OEMs in diverse manufacturing fields. These customers are targeted to develop long-term relationships that are mutually beneficial. The company focuses on high precision, tight tolerance work with quick turnaround times. The company does not see itself as a typical “job shop,” but rather as an extension of its customer’s production.

It Starts With Employees

The secret to Pazmac’s success is, in part, its people. Its motto is “hire to retire,” and company leaders see that an investment in employees is reciprocal. By providing employees with an exemplary

experience and incentives, the shop gains exemplary talent, commitment and employee retention.

By creating a desirable professional environment, the company attracts qualified machinists and are always recruiting. It challenges itself to constantly raise the bar when looking for new talent. Pazmac has a close alliance with the provincial technical schools and offers a generous apprenticeship program. According to Mr. Walls, the company differentiates itself by essentially paying company apprentices to go to school.



Currently, Pazmac has five apprentices enrolled in its program. This program is strengthened by the long-time qualified staff; everyone in Quality Assurance is a machinist, and there are multiple journeymen (including one female staffer) on the floor.

Employees crosstrain, and a high percentage of them are able to switch between milling, turning and mill-turning. This problem-solving capability creates more flexibility in processing jobs and, ultimately, more efficiency. The company and its employees also have a higher morale from working a variety of operations (see sidebar, page 30).

The Right Stuff

In order to meet the goals and objectives for dealing with the pressures of the economic climate, Pazmac has moved to invest in advancing its technology as well. "We have always been partial to Mori Seiki machine tools as they have a reputation for producing quality equipment," Mr. Walls says. "We have received excellent support from both Mori Seiki directly and Ellison Technologies of Kent, Wash., relative to our machine tool requirements."

Ron Wallace, head of quality control, says he was "impressed by the NL Series machines. The robust nature of the Mori turning centers is ideal for the level of reliability and precision we expect." More-



▲ Workpieces are quickly and efficiently moved through production on the NT Series machines.

over, the company was shocked when it first purchased an NT Series machine (from Mori Seiki) and discovered it could run a significant cross-section of different parts in this multi-axis machine tool.

The 25,000 square-foot facility has three primary work cells consisting of turn-mill (as many as nine axis), milling (as many as five axis) and turning (as many as four axis). The company has duplicates of several machines, which assists with the scheduling of work. Of course, the commonality of controls and machine interfaces allows the staff to become proficient at operating the equipment. The NT and MT machines are used heavily to support a lean "done-in-one" mindset. Sixty-five percent of the company's work is multi-axis work from 1 inch in size to as much as 63 inches. The myriad workpieces that come through Pazmac's doors range from unclassified government work to subsea and oil field parts. There is no such thing as a typical tolerance for these professional journeymen and women—they will machine down to ± 0.0001 inch and cut "everything short of wood," according to Mr. Wallace.

The work cells are supported by a well-stocked QC/metrology lab, a group of machines primarily used for jigs and fixtures, along with a tightly controlled toolroom. Also, the company willingly invests in primary and support equipment that ensures the flow of quality product. The consensus is that you need to provide machinists with the right equipment to get the job done, and they certainly don't cut corners.

The primary buzz phrase at Pazmac is "machine uptime." "We only generate revenue when our spindles are turning," Mr. Walls says. "Everything else is cost." The company regularly achieves 90-percent spindle use, which helps justify the cost of

◀ Pazmac's certified journeyman machinists confer on the manufacturing floor.

▼ Pazmac President/General Manager Tim Walls stands by Pazmac's commitment to customers and employees.



capital equipment. The cost of equipment is further justified by the amount of work that is sole-sourced directly to Pazmac. The long and short of the story in this arena is that they are often the only provider that can make a product.

The company is also able to maximize productivity by managing workflow precisely. The focus is on eliminating as many obstacles to the production of a part prior to the start of the job. With the help of the company's ERP system from Global Shop Solutions, they address all issues around maintenance, programming, tooling, material, and so on, well in advance of the actual production. Every part that is quoted has the complete process mapped into a process router. It can initiate production of a component instantly. Each job is tracked through manufacturing and reviewed completely to determine if the part can continue to be produced for the correct cost. This also supports the emphasis on continuous reliable delivery.

Customer Communication

Before a single chip is cut, Pazmac prepares for a job by working closely with clients to prepare tooling and workholding necessary for the most efficient part production by virtue of the company's exemplary engineering support. DFM (design for manufacture) is integrated into the package and offered to all of its clients. Mr. Wallace says, "Some customers resist what it takes to produce a part economically because they don't want to invest in re-engineering. In the end, it can paralyze their competitive potential."

The company's philosophy is to assist the customer in delivering cost-effective solutions to the marketplace. It does the DFM work for free, and it still pays off. "We always think long term, which tends to go against typical corporate thinking that is often whatever the 'flavor of the week' is," according to Business Development Manager Stacey Saumure. The resistance to risking a short-term investment in re-engineering can cripple a company's bottom line.

Retaining Skilled Professionals Blueprint

Full-time Pazmac employees work on 4-year programs to become journeymen or women. The company pays 20 to 25 weeks of salary and tuition, during which these students are not part of production. "We don't pull back on training," Mr. Walls says. "The major benefit to the employee and the company is longevity. After 9 years, we have 100-percent retention with this program." In addition to journeymen programs, Pazmac also hosts a variety of other skills training, including Mastercam and Esprit technical sessions on a yearly basis.

Education is only the beginning of the culture the company has created. The company also offers a great benefit package, competitive salaries, and an overall team attitude that emphasizes wellness and pride in one's work. This is evident from the moment one approaches the doors; a lap pool is visible from the front entrance and is available to all employees, along with 24-hour access to the company gym. Every person can opt to participate in a 1-hour, company-sponsored fitness training session weekly.

How do these perks add up? They equal the overall wellness of the employee's health and well-being. "This committed company culture creates highly-skilled, long-lasting employees who have pride in their work," Mr. Walls says. Staff members cooperate with fellow employees and are respectful to each other.

The team member with the most seniority has been with the company for more than 35 years. He was given a 2-month travel voucher, sponsored by the company, for reaching that significant plateau.

But it's not only the long-time employees or the "top guys" who are succeeding. Team members have a profit sharing platform based on achieving key business targets. Because of its unique company culture, Pazmac is able to maintain an exemplary workforce.



▲ Prioritizing health and wellness is an essential part of Pazmac's business philosophy.



▲ Every aspect of workflow is carefully managed by using the ERP system.

Alternately, the willingness to partner with Pazmac can have astounding results. It has roughly a 90-percent success ratio in part redesign for customers.

The throughput potential yearly is \$20,000,000 and, despite the recent downturn, 20 percent of its business is new customers. In fact, the company only briefly felt the slowdown of business and has recently been challenged with a return of significant production demands and will continue working toward increasing production capacity.

Protection Through Proaction

How does one prepare for a downturn, exactly? The company ensured that it was on a strong cash footing leading into the business downturn. Then it put its staff to work, analyzing the way its business was handled and focusing on continuous improvement. The company sought to further diversify its customer base by aggressively and confidently pushing its reputation and brand into new markets.

"We purposely go after work that the typical shop stays away from," Mr. Walls says. "If we succeed, we learn and develop as a business." It also reduces the level of direct competition. There is a sense that, even though it is a small operation of 55 employees, Pazmac truly sees its market as global. "We'll go any place, any time to meet with a customer. It's important to show intent and commitment to customer satisfaction," Mr. Saumure says.

The economic downturn introduced significant pressure from Pazmac's client base to reduce pricing, however. Rather than view this as a negative, the company chose to use this as an incentive to focus on reviewing manufacturing processes and potential cost reductions in the supply chain.

Mr. Saumure points out, "It is easy to get locked

into a methodology for manufacturing parts when you are busy. It might be a process initiated 5 years ago and a lot has changed—available tooling options, equipment upgrades, employee skills, and so on. We have taken advantage of the slow down in our production schedule by reinventing the way we approach our work." The company has always maintained solid long-term partnerships with its supply chain, and there is a firm belief that intelligent loyalty breeds consistent commitment from its vendor base. The goal was to retain market share with clients by offering reduced pricing on components, while trying to sustain its target margins.

When most companies think of the challenges they face in a declining economy, the actions and reactions are focused on cutting costs. Pazmac realized there was as much opportunity in its rapidly changing market as there was a requirement to be cost conscious. This high tech machine shop decided it was the perfect time to broaden the scope of the business and develop the capabilities of its staff.

The company focuses on having top level talent in each area of their business. In machining, it does not use operators, but rather, journeyman machinists and apprentices. It sends all apprentices through a trade program at a local technical college. Mr. Wallace says the highly complex nature of our work combined with a "lean" requirement for frequent change-over of parts drives the need for the best available skill sets.

The company has created a highly capable, well-equipped facility that attracts and retains some of the best talent in the world of machining. This dynamic workplace then challenges itself every day to improve. "It seems like a whole lot of common sense to us," Mr. Walls says. "I am proud of the staff at Pazmac—it is the reason we are successful." ■



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