

Tour America 1991: Something Special in Wisconsin

Touring seven plants in four days.

Kevin O'Shea, Nancy Palmer, and Pat Hartman

Employee participation, along with innovative technology and production methods, highlighted the recent AME Tour America 1991 visits to seven manufacturing facilities in southeastern Wisconsin. "It was quite a week! Beginning on a Monday evening, 30 AME members gathered in Milwaukee, WI for a week of touring, networking, benchmarking, and shop talk — long days and nights of sharing and comparing 'Something Special in Wisconsin,'" said Bob Reynolds of Briggs & Stratton, president of AME's Midwestern region.

Daily plant tours of one-two plants, discussions about pockets of excellence at the host companies, and a Saturday wrap-up session for sharing ideas about excellence to be applied in participants' own operations were among the Tour America activities. Following is a sample of the ideas shared.

John Deere Horicon Works, Horicon: Excellence in Setup Reduction

Setup reduction receives intense scrutiny at this lawn and grounds care equipment production facility. Quick change tooling, standardization and simplification of tool beds and tool clamps, changeover equipment at each machine, programmable controllers, and quick-connect air lines brought to the front of equipment — these efforts, and close supplier ties, cut setup times. Other Deere techniques: multi-pin connectors and an air-driven tool mover. Equipment demonstrations: 500-ton mechanical press die cart, 1000-ton hydraulic press die exchange systems, and a 175-ton Cincinnati CNC press.

Bemis Manufacturing Company, Sheboygan Falls: Problem Solving Through Employee Involvement

A commitment to continuous improvement through employee involvement (EI) is strong at this family-owned company. Cross-functional teams identify, define, and solve problems using root cause analysis, PERT techniques, and statistical analysis. Team results are published in book form and distributed throughout the company. Employees are trained through Network 21, a peer-based multi-media program including custom video tapes developed at a local community college. Bemis gave the college a \$25,000 equipment grant and agreed to purchase added tapes on a continuing basis.

Executive Vice President Peter Bemis was among the hosts at this injection molding facility called ADF (automated defect-free). The plant runs seven days a week, 24 hours a day, without supervision. Major product lines include medical devices, humidifiers, lawn furniture, toilet seats, and custom molded products.

Marquette Electronics, Milwaukee: Empowerment and Strong Supplier Links

Employees produce medical diagnostic equipment (ECG or electrocardiogram machines) and patient monitoring equipment. This work force of 1500 has flex hours, a fitness center, a company stock ownership plan, a day care center, profit sharing, and no dress code. Personal relationships are encouraged

with customers and suppliers.

The company recently developed a vendor system including in-house stores. This system allows unusual raw material availability and zero finished goods inventory. Suppliers also participate in new product development teams.

Allen-Bradley, a Rockwell International Company, Milwaukee: World-Class Computer-Integrated Manufacturing

Allen-Bradley's outstanding CIM performance was reflected in its World Contactor Automated Assembly Facility. Customers like the 24-hour shipment guarantee, with the capacity of up to 1000 variations; in seven years, they've never shipped late.

A company-wide quality program initiated in 1985 saved the company more than \$129 million in quality costs and reduced the cost of quality by at least 60 percent, while market share increased in major product areas. On a cumulative basis, the quality program paid back \$13 for every dollar invested. Current challenges: changes to meet ISO 9000 requirements and the goal of "Total Quality for Customer Satisfaction."

Harley-Davidson, Wauwatosa: Kanban, Cell Manufacturing, Vendor Ties

The story of Harley-Davidson's Engine and Transmission facility, once near extinction and now a lean, mean operation, is well known. Three major programs contributed to

its turnaround: Materials As Needed (MAN — Harley's own brand of JIT), Statistical Operator Control (every employee responsible for quality), and EI. Tour-goers agreed that Harley is one of the few manufacturers sustaining continuous improvement over ten years' time.

Asked, "How do you keep the momentum going?" Harley representatives said Kanban, cell manufacturing, and close vendor relationships are essentials. Other contributors: conscientious material handling, effective use of traditional machining equipment and computer-aided technology, SPC, a well-trained work force, cellular manufacturing, and a sense of work force involvement and pride.

Eaton Corporation, Watertown: Self-Managed Work Teams and Employee Ownership

Nineteen empowered work cells (ten to 15 members per cell) manage manufacturing at this facility, where digital, mechanical, and electronic counters are produced. The concept of spokes in a wheel works well: In the environment spoke, for example, one employee per cell is responsible for safety, housekeeping, hazardous materials management and communication, employee chemical exposure, recycling and waste management. Other spokes: EI, quality, cost, and manufacturing.

Employees help to select equipment (such as surface mount), building a sense of ownership. Teams participate in the interview-

ing process to select their own coordinators (rather than supervisors) who coach and encourage leadership. Employees have a strong sense of their role in supplier/customer relationships.

Briggs & Stratton, Milwaukee: Do It Right, Do It Now Cellular Manufacturing Attitude

Briggs & Stratton's (B&S) production of four-cylinder engines for industrial and lawn and garden markets traditionally emphasized ways to maximize machine output and individual piecework. It led to inventory stockpiles and their associated wastes. That situation changed in 1991, when the Large Engine Division launched its "War on Waste."

Focused factories within the two million sq.ft. facility now achieve level loading through cellular manufacturing. Only nine months into a four-year plan, B&S converted 20 of the planned 42 cells into one piece flow manufacturing cells. Significant benefits include inventory cutbacks, personnel reduction (direct and indirect), cost of quality, inventories, space reduction, and setup reduction and elimination. B&S stressed doing the right thing (cellular manufacturing/one-piece flow) right.

Shared Learning

Tour America 1991 participants benefited from the candid experience sharing of the host companies. Special thanks to John Deere

Horicon Works, Bemis Manufacturing Company, Marquette Electronics, Allen-Bradley, Harley-Davidson in Wauwatosa, Eaton Corporation in Watertown, and Briggs & Stratton, Milwaukee.

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Editor's Note: Information about AME's next Tour America, set for Minnesota next September, is in the Networking section.

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