Figure 11.5b. COSTS OF POOR QUALITY AND PRODUCTIVITY: The Automotive Industry

EM8903: Globe and Mail, May 20, 1989, pages B1 and B4

Canadian factories lead Chrysler's quality audit

BY DAVID CLIMENHAGA
The Globe and Mail

The four Canadian vehicle assembly plants of Chrysler Corp. are ranked in the top five spots in a quality audit conducted by the auto maker of its 14 North American assembly factories.

The three that produced the best workmanship in the company's car-assembly operations during the 1988 model year are all in Canada, according to the 1988 annual report of Windsor-based Chrysler Canada Ltd. published this week.

The Bramalea, Ont., factory where Chrysler builds its Eagle Premier sedan and is about to start production of a Dodge version of the same car earned the top spot in the audit.

The audit is conducted daily in all Chrysler plants on cars chosen at random as they roll off the production line.

The No. 2 and No. 3 spots went to the nearby Brampton factory, which builds Jeep YJ utility vehicles (Jeep Wranglers in the United States), and the main Windsor plant, which builds Chrysler's short-wheelbase minivan.

The No. 4 position was captured by the St. Louis van plant, where the long-wheelbase minivan is made, and the No. 5 spot by Windsor's Pillette Road full-size van plant.

Chrysler's ranking confirms what industry observers have long suspected – Canadian autoworkers do better quality work than their U.S. counterparts.

Industry scuttlebutt is that quality audits by General Motors Corp. and Ford Motor Co. also give their Canadian operations high marks for quality.

But auto makers traditionally have been reluctant to reveal the results of their audits because of what they also show: which plants are at the bottom.

The booby prize in Chrysler's audit went to the long-troubled Jefferson Avenue plant in Detroit, which accumulated 22.1 demerit points, compared with Bramalea's 13.1.

In 1988, Chrysler built Plymouth Reliant and Dodge Aries K cars in the 65-year-old plant, as well as the E body cars, which include the Chrysler 600, New Yorker and Plymouth Caravelle.

This year, Chrysler has moved production of its Dodge Omni-Plymouth Horizon subcompacts from the Kenosha, Wis., plant it closed last December to Jefferson. It plans to build its new Jeep ZJ truck in a new plant being built on the site.

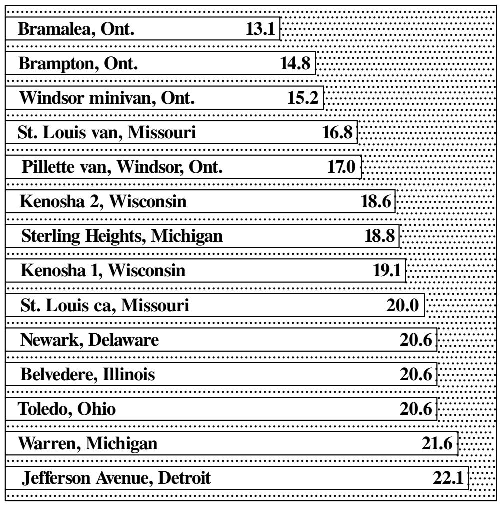
"These results are a clear indication of why no Canadian plant is particularly vulnerable (to closing because of overcapacity)," said Toronto industry analyst Dennis DesRosiers. "Chrysler has some of its best management in Canada, excellent labour relations, modern equipment and an excellent government environment to operate in."

Typically, plants that have had a recent history of good labour relations tended to do better.

However, U.S. auto industry analyst William Pochiluk cautioned, "it's extremely difficult to make inter-plant comparisons because they don't all have identical processes."

Chrysler's Canadian plants top others in quality

Ranking of plants by number of demerit points (lowest is best)



Such factors as the level of technology, the personalities of the inspectors, and the number and complexity of the sub-assemblies made elsewhere and used in the cars, can all have an effect, he said.

For example, the top-ranked Bramalea plant, acquired in 1987 in Chryslers takeover of American Motors Corp., is not only almost brand new, but had unused capacity of about 180,000 vehicles last year.

Chrysler Canada's report says the quality auditing teams do four checks:

- Customer acceptance: factors readily apparent and a cause of immediate disatisfaction, such as fit and finish, rattles and squeaks, and door and window controls that are hard to operate.
- The water test. In a word: leaks.
- Specification audit: measuring body parts and sub-assemblies to make sure they fit.
- Driveability: making sure the engine starts properly, and steering, brakes, lights and so on work.

Chrysler Canada says its scoring is based on a set number of demerit points assigned to each type of defect. "Demerits vary in degree of severity from slight flaws to defects which would require dealer repair."

"Items covered by the customer acceptance audit are accorded the largest number of demerits," the report says. "The lower the average score, the better the plant's performance."

Compared with Bramalea's 13.1 demerits, Bramptom had 14.8, Windsor's main plant had 15.2, St. Louis 16.8 and Windsor's Pillette Road 17.

"We've always had a good strong reputation here for quality," said Chrysler Canada spokesman Walter McCall. "I don't think its ever been this high, though."

The other Chrysler plants on the list, with demerit points in brackets, and the vehicles they produced in 1988 were as follows:

- Kenosha Plant No. 2, (18.6), closed last December, and which made the Omni-Horizon subcompact twins.
- Sterling Heights, Mich., (18.8), Dodge Shadow-Plymouth Sundance and Dodge Lancer-Chrysler LeBaron GTS.
- Kenosha Plant No. 1, (19.1), also closed in December, Chrysler Fifth Avenue.
- St. Louis car, (20), Dodge Daytona and Chrysler LeBaron coupe and convertible.
- Newark, Del., (20.6), Aries-Reliant-cars, Chrysler LeBaron, Dodge Spirit and Plymouth Acclaim.
- Belvedere, Ill., (20.6), Dodge Dynasty, Chrysler New Yorker.
- Toledo, Ohio, (20.6), Jeep Cherokee, Wagoneer, Grand Wagoneer and Comanche.

(*continued overleaf*)

- Dodge City in Warren, Mich., (21.6), Dodge Dakota and Dodge full-size pickups.

Despite their apparently better quality work, unionized Canadian auto workers tend to cost less than their U.S. counterparts, in significant part because a greater portion of the cost of many social benefits such as medical care is borne by the state in Canada.

According to the most recent U.S. Bureau of Labour Statistics information, a typical Canadian auto worker's wages and benefits cost about $14.50 (U.S.) an hour in 1987, compared with $20.39 in the United States.

1. A quality audit of automotive assembly processes, which forms the main theme of the article EM8903 given overleaf on page 11.25 and above, is a complex measuring problem. Outline (some of) the factors that are responsible for this complexity; indicate explicity for each factor whether it is mentioned in the article and, if it is, where.
   - In addition to measuring difficulties, what matter(s) affect the *limitastions on Answers* drawn from the audit data given overleaf on page 11.25 about the relative quality of vehicles assembled at the 14 plants? Explain briefly.
     - In light of your previous answers, comment critically on the discussion of relative plant output quality given overleaf (*e.g.*, in the left-hand column).

2. In the fourth paragraph of the first column overleaf on page 11.25, it is stated that the audit is carried out on cars .... *chosen at random as they roll off the production line*. Outline why *equiprobable* ('random') selecting is important in this situation.
   - Suggest a *method* of selecting the cars that would represent equiprobable selecting; remember that your method must be practicable on an on-going routine basis with people who may have little *formal* statistical training.
   - Suggest a method of selecting the cars that would *not* be, but which might *appear* to be, equiprobable selecting.
   - Suppose that the selecting method was to take every *50*th car coming off the production line. Under what conditions, if any, could this be considered to be equivalent to *equiprobable* selecting from the line's output? Explain briefly.
     - Outline one advantage and one possible *dis*advantage of the 1-in-50 *systematic* selecting process described in the previous part of this question 2, assuming that the requirement for equiprobablility can be met.

3. In the context of the fifth paragraph of the middle column of the article EM98903 reprinted overleaf and above, explain briefly what you understand by the phrase: .... *the personalities of the inspectors,* .... .

4. With reference to the article EM9103 *Canada 16th in productivity* reprinted below, comment critically on the statement: *Measuring the productivity of a whole country is such a complex problem that it is meaningless to say Canada ranks 16th on the world scale, or that Canada's position on the scale has declined from 4th place since 1970.*

EM9103: The Kitchener-Waterloo Record, January 15, 1991, page B5

Canada 16th in productivity

MONTREAL (CP) – Canada has fallen to 16th place in the world scale of productivity – from fourth place in 1970 – and the country had better snap out of the decline, warns the chairman of a major distribution company.

Jeannine Guillevin Wood, of Guillevin International, said in a speech Monday that Canadian companies do not even take advantage of the productivity aids that are readily available.

A survey among small- and medium-sized businesses in Quebec in 1989 indicated that 65 per cent of them did not use any productivity aids, such as computers for designing, management and inventory controls, or robots.

In training employees, Guillevin added that Canadian companies devote an average of three hours per year per employee, compared with 100 to 200 hours in Europe, the United States and Japan.

It takes an average of seven years in Canada to bring to market a new technology, she said. Americans take three years and the Japanese 1.7.

Guillevin, who built an electrical appliance shop into an international electric parts distributor with nearly $500 million in sales, said companies have to wake up "before we find ourselves with a marginal and obsolete economy."

She told the Canadian Club that the country's era of natural resource exploitation has to give way to more emphasis on its manufacturing sector.

Only 24 per cent of Canada's workforce is in the manufacturing sector, compared with 28 per cent in the U.S. and 34 per cent in Germany.

"We must keep in mind that the manufacturing sector is the principal generator of economic strength for a country."

She said a North American trading bloc including Mexico is inevitable, and is nothing for Canadians to fear. Cheap Mexican labour is not such a big threat to Canadian workers, she said.

"What counts is not its abundance at a cheap rate, but its efficiency, productivity, devotion to work and quality of training."

Guillevin added that to improve productivity, Canada has to end its political debates.

"At a time when most countries are governed by economic reason, we are paralyzed by constiutional questions which drain all our energies."