THE SEARCH FOR ZERO DEFECTS

Detroit looks for the secret of building high-value cars

by Fred M.H. Gregory

ILLUSTRATION BY DARRELL D. MAYABB

Detroit in the dead of winter can be a grim and dreary place. Beneath a sky the color of an old felt hat, with an icy wind from Canada swirling the dirty remnants of an earlier snowfall around the streets, one's mood easily drifts toward depression. And that's during the good times. These days, with the car business being what it is, the pall shrouds the city's spirit more than usual.

It heightens the stark images of shutdown and decaying factories. It gives added menace to deserted buildings along the streets of the city's ghettos. Even in the wealthier suburbs, where bundled-up children play in the cold, it imparts some sense of despair.

Detroit, riding as it does on the back of the auto industry, is a one-horse town. And when the horse pulls up lame, the city gets off and walks. It's happened before, through wars, depression and a number of recessions. But Detroit has always managed to mend itself and get back on track. This time, though, the rate of recovery is slower than ever before.

The blame for the industry's woes can and should be spread around. High fuel costs, stratospheric interest rates, crippling inflation, a staggering economy and stiff import competition have all taken their toll. The government, too, has contributed its share by draining away scarce capital and technological brainpower to meet excessively stringent emission and safety regulations. And over the years the industry's executives have often been guilty of incompetence, complacency, indecision and short-sighted greed.

But there's one cause for the car companies' problems that sticks in the craw. People have been turning away from American cars because they don't measure up. They just don't seem to be as good, as well made, as those coming from Japan and Germany, in particular. It's a

growing perception that is having a profound effect on the business of making cars in this country.

"I have to say that in the mind of the customer, imports have a quality advantage," concedes John A. Manoogian, the executive director of product assurance for Ford.

"Both the German and Japanese products have demonstrated a good performance in quality. Particularly, and I underline that, in the areas of detail; what we call in America, fit and finish," says Alex C. Mair, former division manager of Pontiac who now heads General Motors' technical staffs.

Over at Chrysler, George Butts, VP of quality, productivity and reliability, simply nods his head and says, "Yeah," when asked if the Mitsubishis that Chrysler sells are superior cars.

Each of these men is quick to emphasize that the quality gap exists in only a few areas, and all extol the other virtues of their products. But the fact that they admit to any deficiencies is as unusual for a Detroit executive as showing up for work wearing Tony Lama boots and a Charlie Daniels hat. The traditional party line at the car companies is to minimize problems out of sight. To actually allow that a problem exists is the first step in solving it.

The second step is to define the problem. Everybody agrees that it is one of quality. But that's like describing an elephant by saying it's big.

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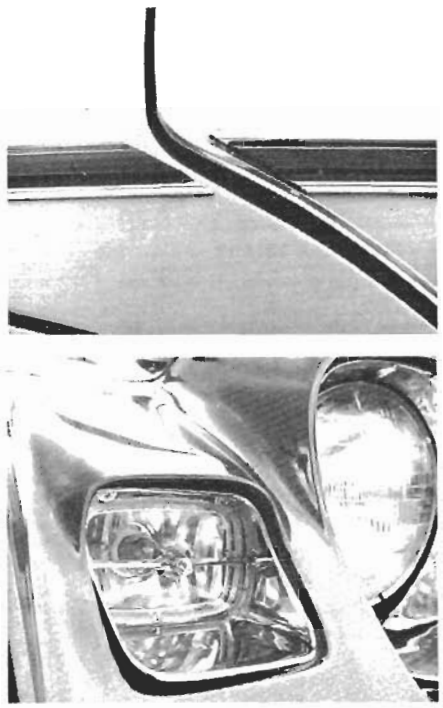
"If you ask 10 people what quality is, you get 12 answers." So says Ernst F. Beuler, not altogether facetiously, though with a smile. If there's anyone with a notion of what quality in cars is all about, it is Dr. Beuler. He is the vice president of quality assurance for Volkswagen in this country. He looks like a professor, and his precise, German-accented English heightens the impression. He goes on: "Quality is the sum of many features . . . quality is fit for use . . . quality is fulfillment of requirements, of engineering intent . . . quality is workmanship, that which you can see and feel with your hands . . . quality is safety . . . quality is performance . . . " He stops and looks up, as if to say, should I go on? No need; his point is well made.

So if quality is all these things and more, what's the big deal? These definitions of the term are ones that logic would dictate to anyone who took the time to think about it. Isn't all this just giving the customer what he wants?

Dr. Beuler pauses and holds up a cautioning finger. "I did not say 'what the customer wants.' I said 'fit for use.' I said, more, what the customer *needs*. Sometimes the customer is not educated enough to define what he needs."

What a heretical notion. The chiseled-in-stone credo of the American car companies has historically been The Customer Is Always Right. The customer wanted tail fins—he got them by the carload. The customer wanted big, plush cars—they arrived by the millions. The customer wanted luxury and gadgets—they proliferated like algae. And when he wearied of one kind of car, the customer could just trade it in on another. Gas was cheap, financing was easy, people got what they wanted, and car makers got richer and richer.



As late as 1978, Detroit was selling record numbers of cars. Obviously, to the auto executives, the customer was getting what he demanded. Then the customer changed his mind.

"Our values have definitely shifted," says Chrysler's Butts. "Our research shows that. A dramatic shift. Before, it was appearance and style; today, it's value, number one. Fuel economy has come way up. Reliability has come way up, and some of the motivational and emotional aspects of car buying have dropped in importance."

The American buyer, in other words, was becoming more like his European and Japanese counterparts. These overseas buyers have traditionally been more sophisticated, more demanding and less emotional about their car purchases. They wanted cars that were well built, that offered practical features and that would hold up under years of service.

The foreign manufacturers met the needs of their own markets and, in so doing, earned a reputation for building high-value cars. And when the American market shifted its way of thinking, this reputation—this unfocused perception of value and quality—became a key element of the importers' success.

The perception is unfocused because so many things go into making a high-value, high-quality car that to run them down on a list would require a ream of paper. Ultimately it would even include such invisible items as the tolerance of a bearing or the deburring of a gear. There are surface indications, of course: the fit of seams, the finish of paint, the way things work. But these only demonstrate good workmanship, which is just one element of the equation.

Ernst Beuler calls high value a "fulfillment of promises." In the car owner's

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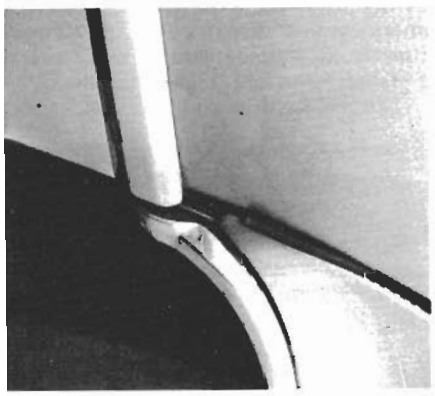
mind it becomes a psychological state—something is good because it feels good. Why it's that way may be a mystery to the customer.

It's not a mystery to people who build cars, however. To create the fact and to build the psychology of value and quality in a customer's mind takes an institutional commitment. It has to permeate the entire organization of a car company.

Without exception, the major domestic automobile companies claim to be dedicated to building quality cars. GM's Mair says that the search for quality has caused his company to "reevaluate our entire process of designing and manufacturing automobiles." Ford's Manoogian says, "Quality is number one on our hit parade." And Chrysler's Butts says, "Quality must be an intrinsic part of everything we do."

VW's Beuler is taking a wait-and-see attitude on such pronouncements. "The question is whether that is lip service or really a program," he shrugs.

And his skepticism is understandable. It takes more than words to build high-quality cars. In Volkswagen's case, for instance, there's a whole bureaucracy charged with seeing that the job is done right. Dr. Beuler is just one of a number of vice presidents for quality assurance around the world. Each of these men reports directly to Claus Borgward, the son of the man who built Borgward cars; and he answers to the chairman of the board. It's an independent establishment, which parallels the rest of the company's management structure. "We are not only advisors; we are clearly in-line functions." This means that the quality people have power. They can stop a production line or reject a batch of parts. In each plant, the No. 2 executive is a quality man. And he has the authority to say no, and make it stick. "We are to some extent the ugly guys in the company."



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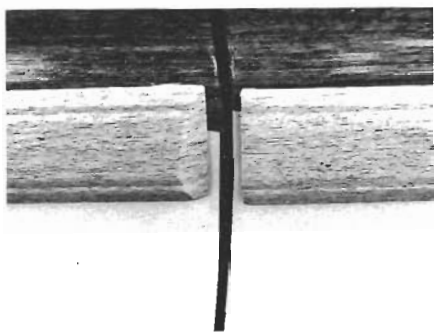
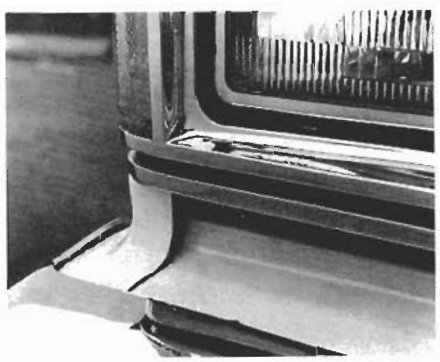
Borgward's uglies are present at the creation of every Volkswagen and stick with it right through manufacture and assembly. After the car is sold, they monitor its performance in the real world.

An increasingly important function of quality-assurance people is to pass judgment on the parts that come from outside suppliers. There are more than 500 of these who ship parts to Volkswagen's Pennsylvania plant. When VW decided to build cars here, its executives were worried about these so-called vendors. "That was our biggest concern when we came over," says Beuler, "that they could not give us the product we needed. This concern proved to be true for some. We had to convince them to change their attitude . . . that was tough." The American suppliers discovered that VW not only gave them the specifications for parts—that's normal in the business—but checked them continuously as they came in and would reject whole shipments if they were found wanting.

This question of dealing with outside suppliers is increasingly important in the ultimate quality of the finished product. George Butts says that "Chrysler is spending 70 cents, if not more, of every dollar we take in to buy a part from somebody else." And Beuler predicts that "manufacturers will become, more and more, systems integrators—that means assemblers."

And that will require the sort of management controls VW has established to maintain a high order of conformity to whatever standards the designers set. There's some indication that Detroit is moving to emulate the Germans in this regard. Each company has appointed a top-level executive to oversee quality, and these men are building staffs to carry out the mandate. "With all the cutbacks we were making in fixed costs and other areas, we added 150-160 people for process control in the assembly plant," says George Butts about part of Chrysler's effort. At GM Alex Mair says, "The initial programs we have are primarily related to improving the performance of our management and workers relating to the work they do . . . The second wave is, we are producing all new vehicles over the next several years . . . while we are doing that, we're taking a giant step ahead of all the competition by improving original designs and processes related to quality."





At Ford, the same sort of thing is happening. Its engine plant at Dearborn is a cavernous two-story building in the heart of the sprawling Rouge works. It had grown obsolete and inefficient and become an oppressive workplace. Instead of tearing it down, which Ford at one time planned to do, $650 million was spent to rebuild it. The result is one of the most modern facilities of its kind in the world.

If you stand at the head of just one of the aisles cutting through the length of the plant, you get a graphic lesson in perspective. Huge blocks of blue and yellow machinery recede into the distance, converging finally at a far distant point. Bright fluorescent lights give the place an antiseptic glow. It's like something George Lucas would dream up to fill the bowels of one of his extraterrestrial "Star Wars" battle cruisers.

Throughout the line, which snakes back and forth for a couple miles, you see examples of the latest technology. There's an optical scanner that checks all 86 holes in a cylinder head; if it finds a misalignment, a burr, a chipped thread, it spits the head off the line and marks it with a computer code that describes the flaws.

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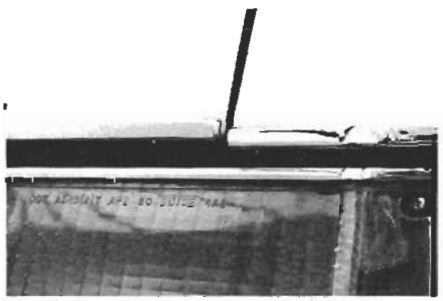
At the end of the line there are dozens of computerized engine testers that check each engine under every operating condition and send the information to a central computer that instantly detects abnormalities. At stations throughout the plant there are large blackboards where the workers keep a running account of the quality rejects in that part of the line. On one machine a worker has written in magic marker, "We do good job at Ford Motor Co."

It's not the sort of sentiment you expect from the American auto worker. For years he's been blamed for the deteriorating quality of our cars. But it's beginning to dawn on people that the worker, though he may be an accomplice, does not bear all the blame for substandard products.

Jerry Dale, a spokesman for the United Auto Workers, says, "Management's attitude was, 'We've gotta get production, production . . . ' Let's face it, that was the philosophy of American industry before

they got the Japanese competition. Especially when times were good, if the worker saw something wrong, it was 'forget it, just push it out, they'll catch it in the repair hall, they'll catch it at the dealer . . .' The foreman and the supervisor were rated by the production they could get out, and the worker got the blame for whatever went wrong. Now I'm not saying that somewhere along the line occasionally some worker didn't screw up—that happens. But mostly it was this basic philosophy [of production], and once the worker sees what's going on, why should he care? If the supervisor doesn't care, if his company doesn't care, why should he? The industry has begun to wake up to the fact that that's not the way to produce cars."

The cold dose of water that startled Detroit from its slumber was the realization that the Japanese could build better cars, with fewer workers, for less money. There are some reasons for this that don't have much to do with the actual manufacture of cars, things like tax and tariff policies and the exchange rate between



dollars and yen. But these wouldn't matter if the products themselves didn't possess a tangible, easily discerned value.

The Japanese have obviously done the job right; their commitment to making high-quality merchandise runs from top to bottom. And at the bottom, at the worker level, there are vast differences between the way they do it and the way we do it. The involvement of the Japanese worker, both real and psychological, is cultivated and encouraged. The famous quality circles, where workers gather in small groups to critique their jobs and make suggestions to improve quality and productivity, and the authority to stop an entire production line if even a single worker sees something going wrong, are but two of the uniquely Japanese ways of doing things.

Some of these methods can be applied to our way of making cars. But because of significant differences in culture and custom between the two societies, some can't. The Japanese worker, for instance, is extremely loyal to his company and gets lifetime security in exchange. But he surrenders the sort of mobility, the freedom to move up and out of a job, from one company or one place to another, that Americans routinely enjoy and take advantage of.

There are other differences, of course, between workers and conditions from country to country. They may be social, institutional or traditional; and they all have a bearing on the ultimate quality of a product, be it a car or a pair of shoes. But there seems to be no particular reason why Americans can't make cars as well as workers in any other country.

Ernst Beuler says, "The American worker has proved that he can build high-quality cars here in the United States." The evidence rolls off the line each day at Volkswagen's Pennsylvania factory. These cars are widely considered to be the equal of those manufactured in Germany.

For the worker to do this kind of job, says Beuler, "We have to give him the tools, we have to give him the equipment,

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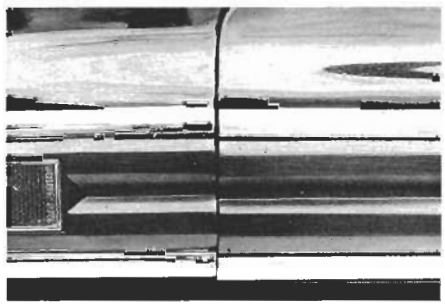
we have to give him the training, we have to give him the right design; and only management can give this to him. . . . But if these prerequisites are fulfilled, then it's up to the worker. He is then the last link in the chain."

The strength of that link has often been questioned here. High absenteeism, apathy and even sabotage have tarnished the image of the American auto worker and have lowered his productivity. But hard times, high unemployment in the industry and the example of the undeniably high quality of the competitors' cars seem to be making an impact. The UAW's Jerry Dale says, "I think everybody has now recognized that there is a quality problem. I think our members have recognized it; management has recognized it, and we're doing something about it. . . . What we want is worker participation, from the board room to the shop floor. We feel that workers have something to contribute to the whole process."

At Chrysler, because of its unique difficulties, UAW President Douglas A. Fraser sits on the board of directors, and union officials are having more to say about every aspect of building Chrysler cars. Neither Ford nor GM wants that much union participation in mangement, but both are becoming increasingly sensitive to the worker's needs and appreciative of the contribution he can make. In fact, both GM and Ford have recently announced that they are willing to explore ways to share profits with workers, something they've resisted in the past.

But even if the worker becomes more efficient, productive and content, he still needs the wherewithal to do the job. That's going to take billions of dollars and a near total rebuilding of the auto industry. Fortunately, this has to be done anyway just to build the kinds of cars that Americans now demand. And if it's done properly, the automatic result will be cars of greater value and higher quality.

"The real myth is that handcraftsman-



ship is good," explains Alex Mair. "And that's not true; [building cars] is far too precise a job to have much handwork involved. It is impossible for human beings to paint automobiles as accurately as a robot can do it, for example."

This confirms Ernst Beuler's theory that quality is free. The latest car building technology, such as the robot, is being used to increase productivity and efficiency. That it also does a better job is a fortuitous spin-off. Beuler says, "The concept that quality costs money is old-fashioned thinking . . . We say that *un*quality costs money. It costs money for rework. It costs money for scrap. It costs money for warranty work."

What Beuler loves to see on the production line is the "direct runner." This is a car that glides by all the quality checks on a line without stopping for repairs. In short, a car without flaws. Zero defects.

And that is what the men who run Detroit say they're trying to achieve. And they'd better mean it. Because there are no secrets here. The fundamentals of building the high-quality car are as well known in Detroit as in Hiroshima or Stuttgart. So the question comes down not to whether Detroit is capable of building cars to match anything in the world, but to whether it has the will and the integrity to do it. MT